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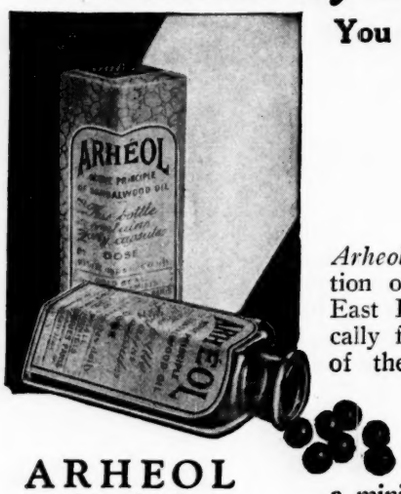

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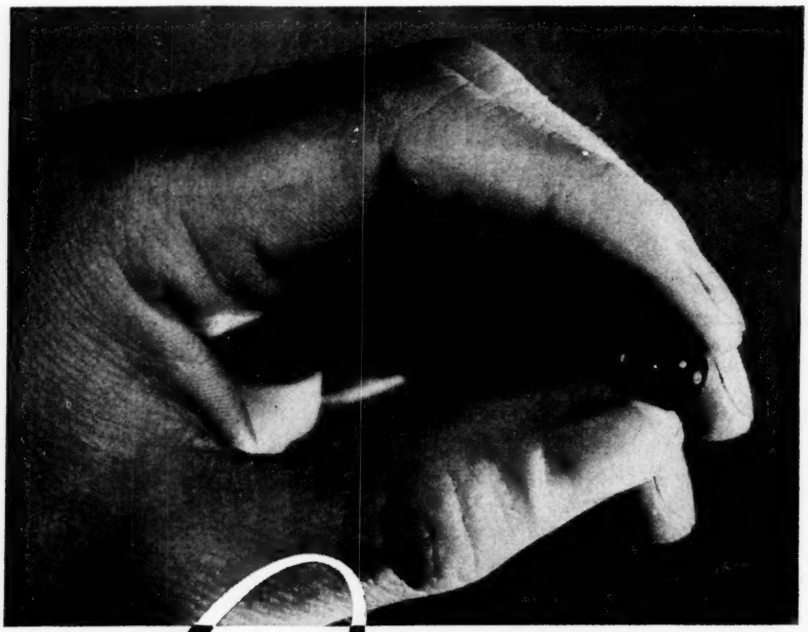

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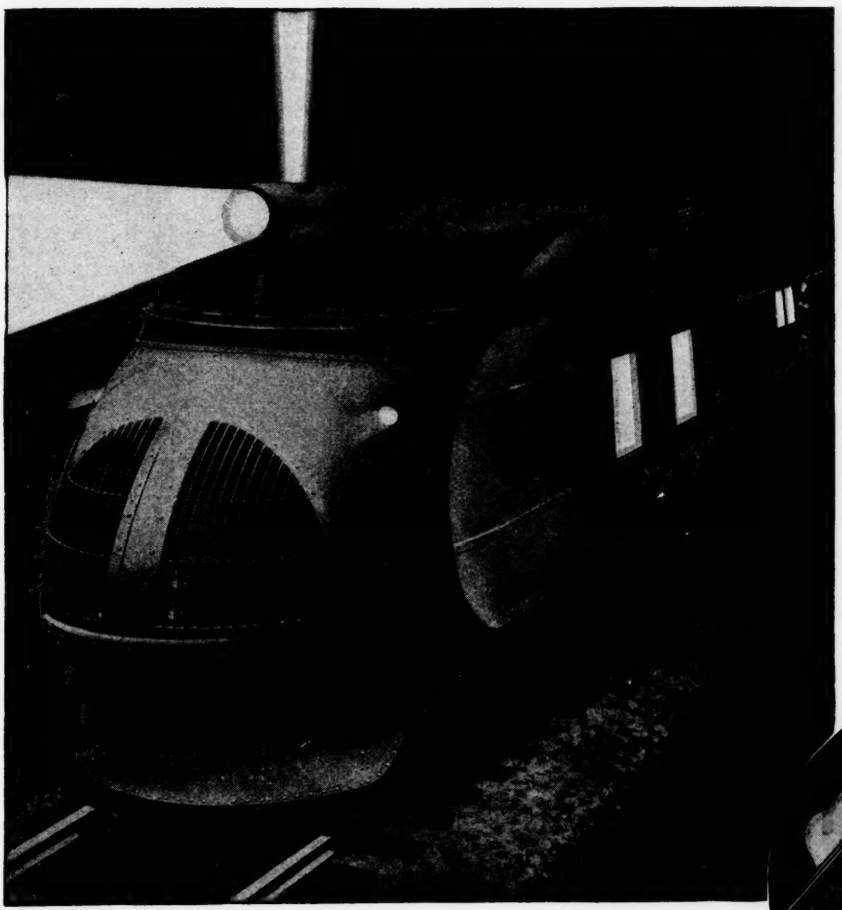

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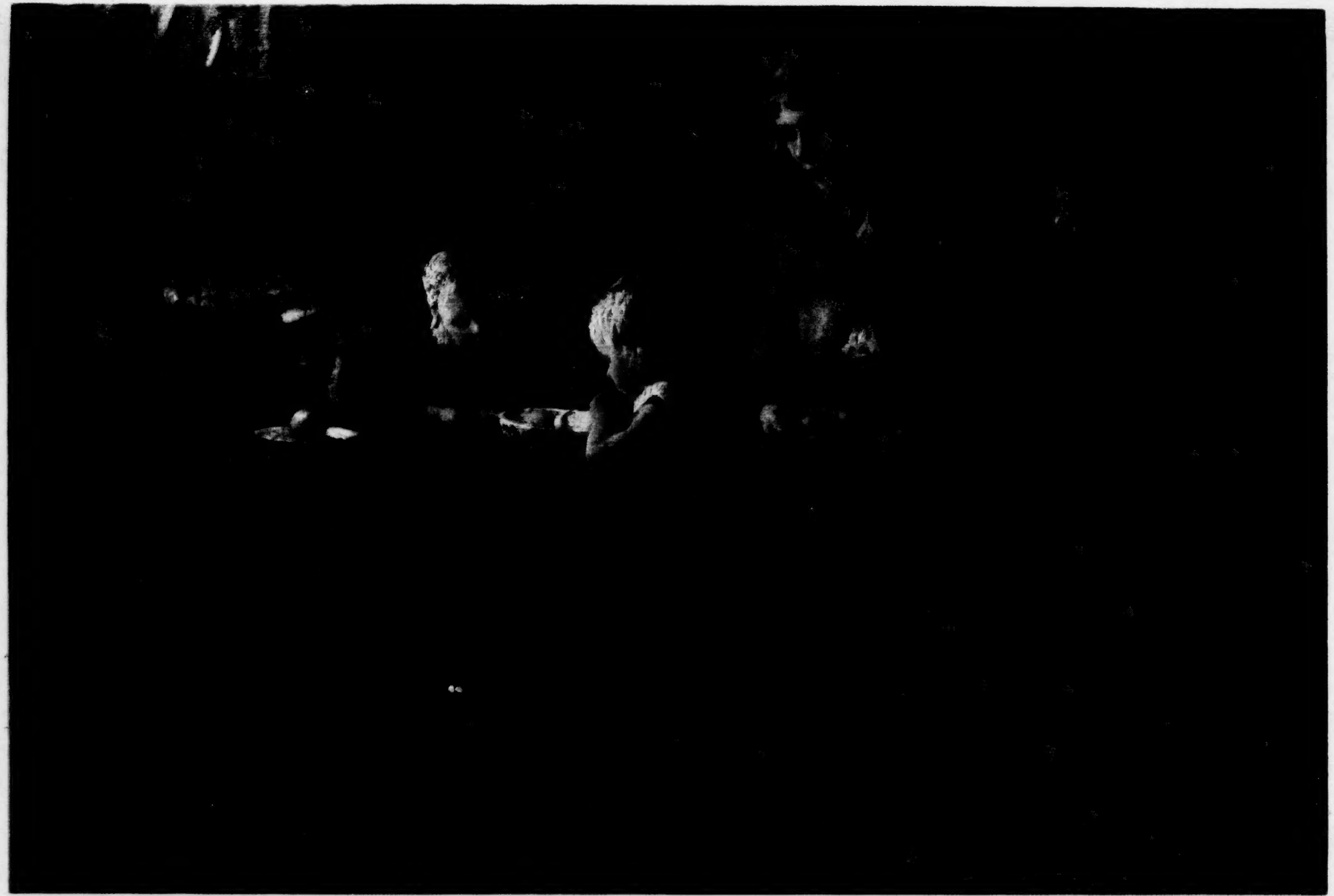

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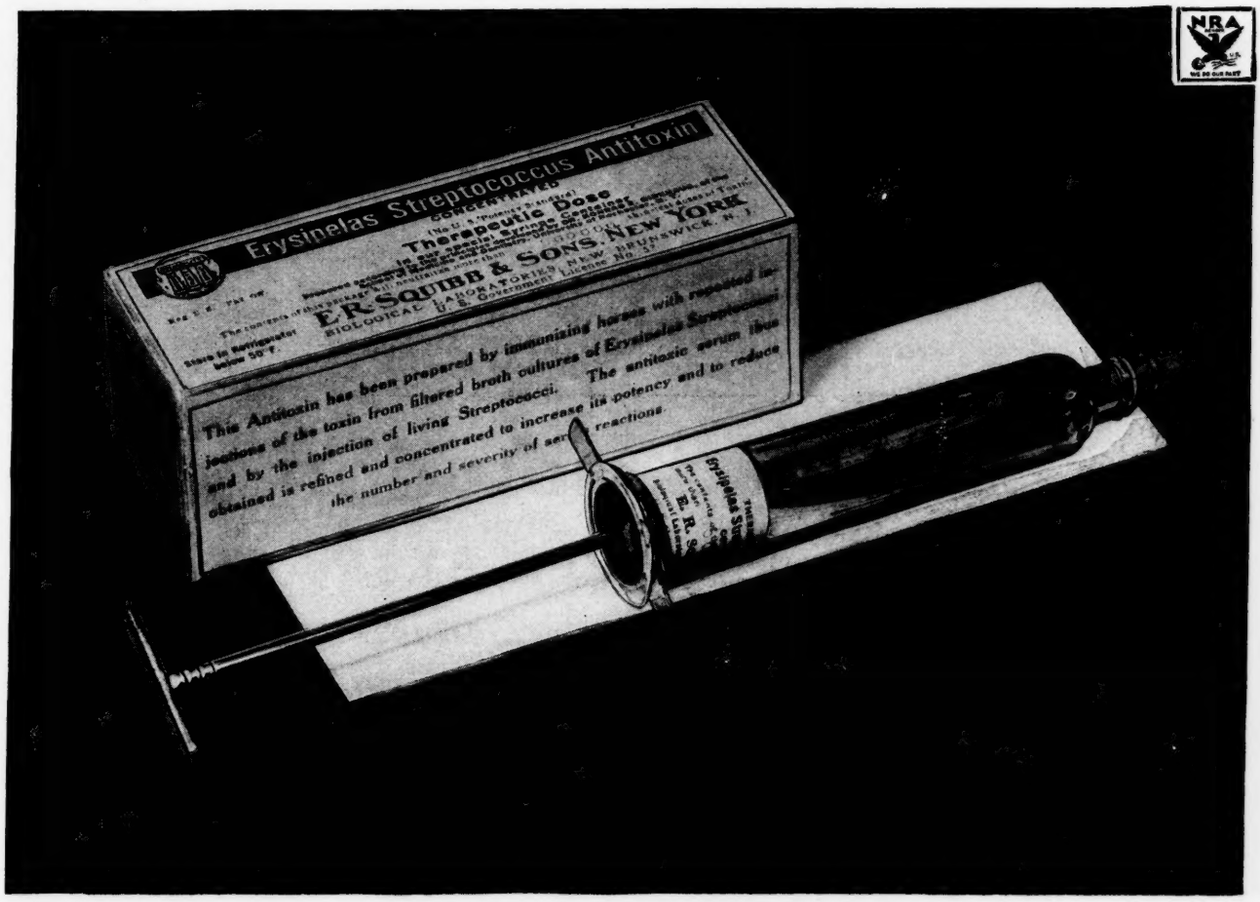
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Williams McKim Marriott, Infant Nutrition, 151, (1930).

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(Wynne, S. W., Commissioner of Health, New York City, *Certified Milk*, Oct.-Nov., 1933.)

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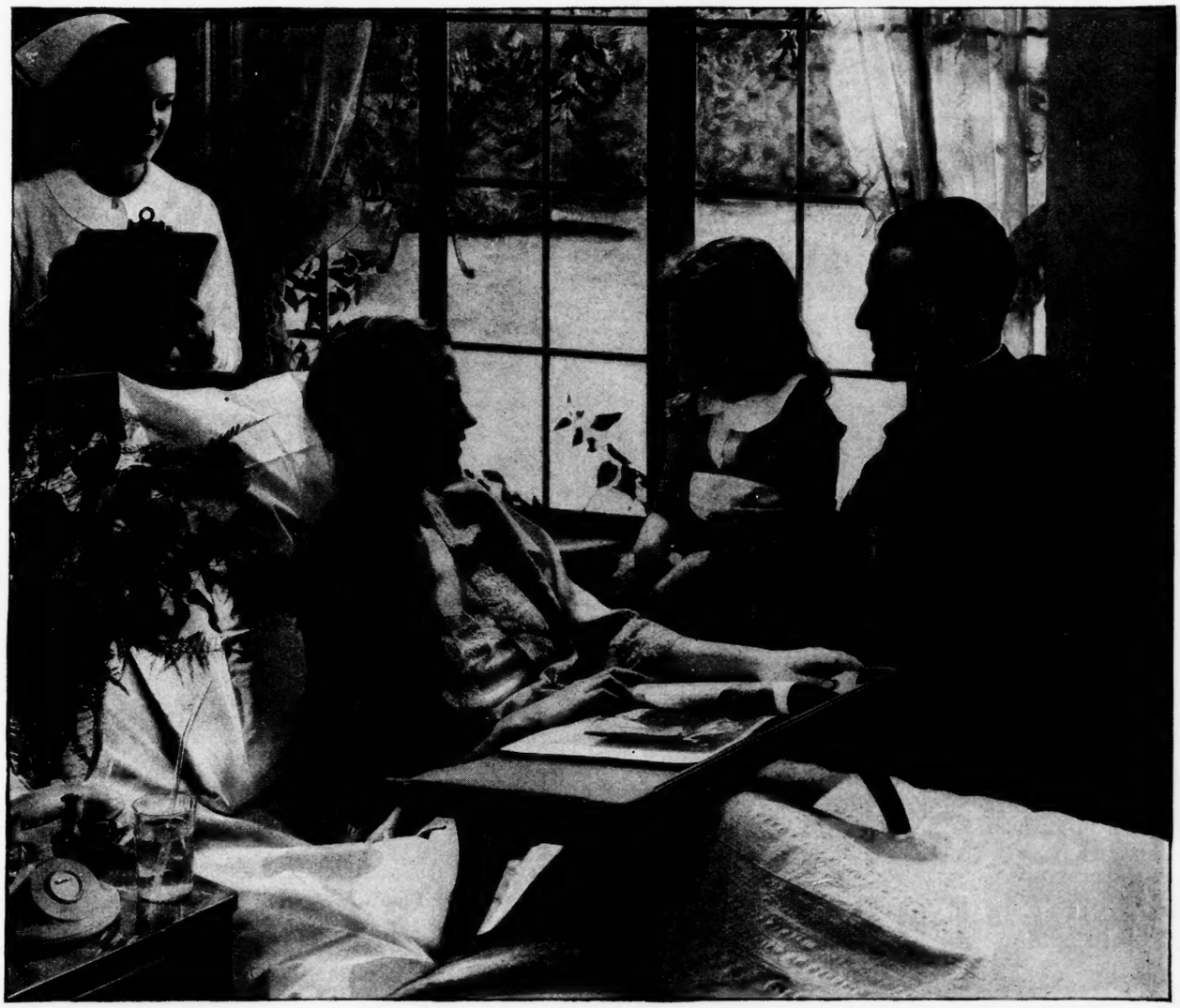

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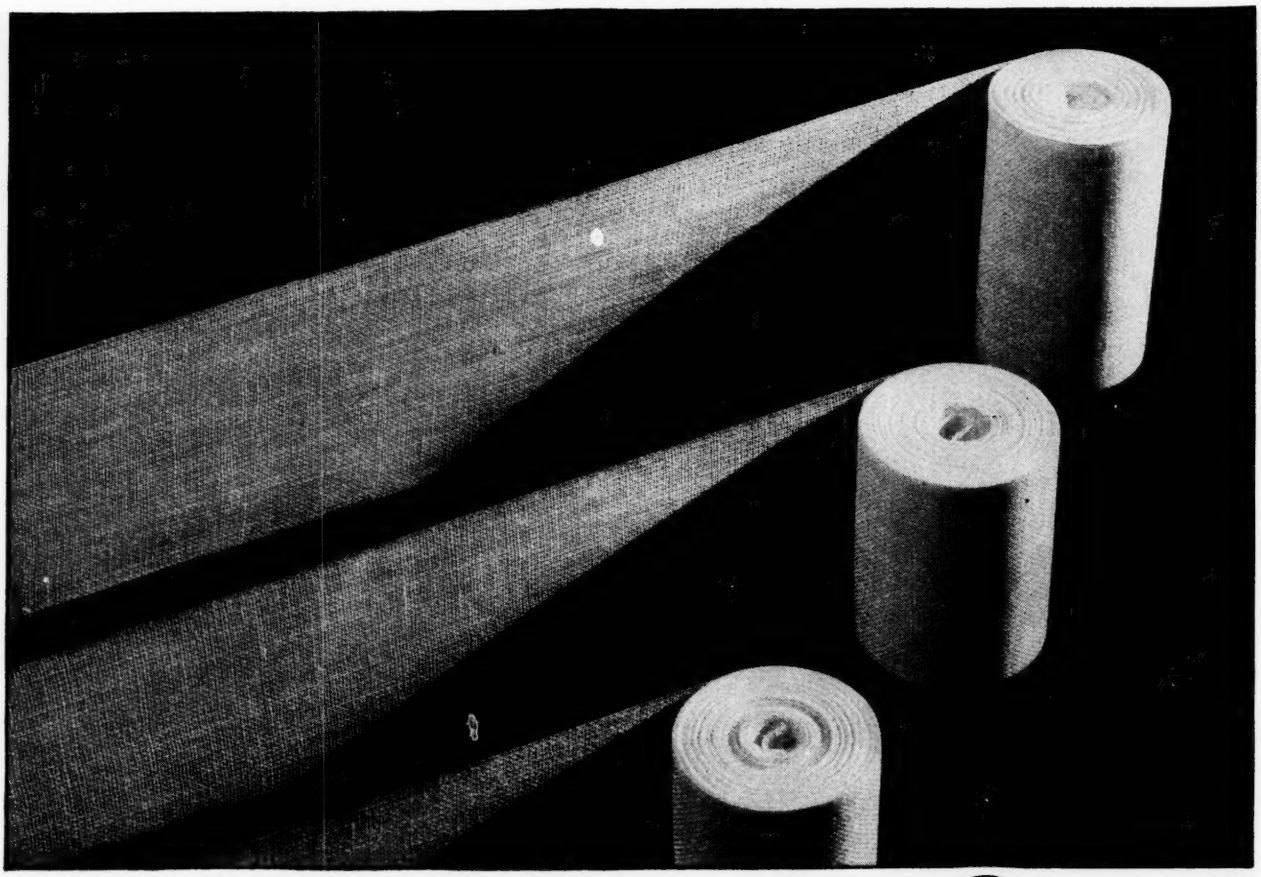

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ABDOMINAL PAIN

II. THE SENSITIVE REGIONS IN THE ABDOMEN AND WAYS IN WHICH THEY MAY BE STIMULATED TO PRODUCE PAIN

WALTER C. ALVAREZ, M.D.

ROCHESTER, MINN.

It is sad to have to admit today that, with all the facilities of modern medical diagnosis at his disposal, the best of clinicians is still unable to explain many an abdominal pain. He can somewhat justify his ignorance so long as 2 inches of skin and fat and muscle lie between him and the apparent seat of the trouble, but what is he to say when the surgeon looks up after a careful exploration and announces that he has been unable to find any sign of disease? Should the physician then wash his hands of the problem by questioning the reality of the pain which he cannot understand? Should he comfort himself by calling it "nervous," or should he not bestir himself to search for new microscopic or perhaps purely chemical causes for it? Should he not more resolutely face the fact that severe pain can arise in tissues that do not show any gross organic disease?

It was with the hope of learning something about the mechanisms of obscure types of abdominal pain that a few years ago I began a search through the writings of anatomists, physiologists, neurologists, neural surgeons, students of local anesthesia, experimenters, and careful observers everywhere for suggestions regarding the ways in which nerve endings might be stimulated and painful messages might be carried to the brain. The present paper is one of a series which I hope to write as I review what little I have been able to glean in the library, in the laboratory and in the consulting room.

SENSORY PATHWAYS LEADING AWAY FROM THE ABDOMEN

In the first paper of this series (1931) I[1] showed that nearly all the sensory nerves from the organs in the upper part of the abdomen and from the small bowel and the visceral peritoneum travel to the posterior root ganglions of the dorsal spinal cord by way of the major splanchnic nerves. A few afferent fibers go out by way of the phrenic nerves [2] and a few more may perhaps accompany the vagus nerves,[3] the aortic plexuses [4] and the lateral sympathetic chains.[5]

Sensation from the lower abdominal organs reaches the spinal cord by way of many paths, some of which are still poorly mapped. One difficulty in the way of studying them is that they vary in different individuals. There are many connections between the lateral ganglionated chains and the central plexuses, and also some connections between the sensory nerves in the pelvis and those in the upper part of the abdomen. One of the most important nerves in the lower part of the abdomen is the presacral nerve, which carries most of the afferent fibers coming from the pelvic organs.[6] Bradford Cannon has shown with his ingenious technic that in the cat the abdominal vagus and the distal parts of each lumbar sympathetic chain are without sensation.[7] In man, stimulation of the lumbar sympathetic chain causes pain in the leg and ankle.[7a]

An important point brought out by Hoffmann is that the splanchnic nerves are not necessarily involved in the production of the tense abdomen of peritonitis. In this disease, the rigidity of the muscles appears to be due to impulses reaching the spinal cord by way of the lower intercostal nerves.

NATURE OF SENSORY NERVES IN THE ABDOMEN

For some time the generally accepted view has been that the sensory nerves supplying the abdominal organs are no different from those elsewhere in the body. They run to the posterior root ganglions, and in spite of the fact that they are found in the same sheaths with the sympathetic nerves they do not belong to the autonomic or involuntary system. Recently, evidence has been accumulating to strengthen the view that involuntary nerves may also have something to do with the production of pain. Thus, Brüning and Gohrbandt showed

From the division of Medicine, the Mayo Clinic.

1. Alvarez, W. C.: Abdominal Pain: Paths Over Which it Travels and Ways in Which These May Be Blocked, Am. J. Surg. **14:** 385-394 (Nov.) 1931.

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4. Foerster, Otfrid: Die Leitungsbahnen des Schmerzgefühls und die chirurgische Behandlung der Schmerzzustände, Berlin, Urban & Schwarzenberg, 1927.

5. Foerster.[4] Head, Henry: Certain Aspects of Pain, Brit. M. J. **1:** 1-5 (Jan. 7) 1922. Head, Henry, and Riddoch, George: The Automatic Bladder, Excessive Sweating and Some Other Reflex Conditions in Gross Injuries of the Spinal Cord, Brain **40:** 188-263 (Nov.) 1917. Kinsella, V. J.: Some Problems of the Normal and Pathological Physiology of the Stomach, Lancet **1:** 1130-1136 (June 1) 1929. Learmonth, J. R.: Neurosurgery in the Treatment of Disease of the Urinary Bladder: II. Treatment of Vesical Pain, J. Urol. **26:** 13-24 (July) 1931.

6. Learmonth.[5]

7. Cannon, B. A.: Method of Stimulating Autonomic Nerves in the Unanesthetized Cat, with Observations on the Motor and Sensory Effects, Am. J. Physiol. **105:** 366-372 (Aug.) 1933.

7a. Foerster, Otfrid: Discussion, Deutsche Ztschr. f. Nervenh. **106:** 311-313 (Sept.) 1928.

that nicotine injected into the celiac ganglions will abolish abdominal sensation,[8] and similar observations were made by Davis, Pollock and Stone.[9] If one accepts the usual interpretation of the action of nicotine, one must assume that any pain blocked in this way was being carried by a pair of sympathetic neurons connected by a synapse. The experiments were so clear cut and so well controlled that, although I have little faith in deductions based on the effects of poisons, I believe the questions raised must be faced squarely. Incidentally, some anatomic basis for the conception of sensory nerves in the involuntary system has been found by Lebedenko and Brjussowa.[10]

In a recent thought-producing article, Shaw[11] emphasized the point that during the course of an operation under local anesthesia the pinching of a sympathetic ganglion causes severe pain, but only after a definite interval of time in which irritable chemical substances are probably formed. As Cannon,[12] Gerard[13] and others have pointed out, there is now much evidence to show that impulses reaching tissues by way of nerves produce chemical substances which spread out and affect not only muscles but also nerves. It is possible that some of these substances can produce pain.

It has been observed also that after sympathectomy the region affected will sometimes be markedly hyperesthetic for several weeks, and Shaw and Pette[14] have suggested that the cause of this is a removal of inhibition and a lowering of the threshold for pain. Craig, however, is inclined to look on this sensitiveness as due more to neuritis following the inevitable slight trauma done to somatic nerves during the operation.

In favor of the view that involuntary nerves carry painful sensations is the fact that some intractable types of pain can be relieved, at least for a time, by sympathectomy. Unfortunately, only the future can tell how lasting such cures are going to be, and until the evidence is in, opinion as to the sensitiveness or insensitiveness of true sympathetic nerves is likely to be divided.

It is possible that injury to or disease of the involuntary nerves can so alter the circulation or the metabolic processes in a region that pain results. Another possibility is that there may be afferent sympathetic or connector fibers which, if they do not carry actual sensations of pain, at least carry impulses which are painful when transmitted to other neurons. As Thies[15] and others have pointed out, a diseased gallbladder, a peptic ulcer, or a kidney stone can produce many distressing symptoms other than pain.

THE SENSITIVE AND INSENSITIVE REGIONS IN THE ABDOMEN

In any analysis of the problem of abdominal pain the student must begin with a clear understanding of the following facts: First, that the viscera and the visceral peritoneum contain so few sensory nerves that they are insensitive to most stimuli such as those produced by cutting and pinching and burning. Second, that what few nerves there are in the viscera and mesenteries are closely associated with the arteries. Third, that the parietal peritoneum, which is well supplied with afferent fibers, mainly from the intercostal nerves, is everywhere highly sensitive.

No good work could be done until physiologists learned to devise their experiments in such a way that they could be sure of stimulating an organ without, at the same time, pulling on its mesentery or injuring highly sensitive arteries or folds of parietal peritoneum.

THE ORIGINAL SEGMENTAL DISTRIBUTION OF SENSORY NERVES IN THE ABDOMEN

Before attempting any study of abdominal pain, and particularly of its mode of reference to the surface of the body, it is essential to review the original segmental distribution in the embryo of the sensory nerves to the stomach and intestine, and to the organs that arise as buds from the upper part of the primitive gut. Because of the well known shift caudad of the organs in relation to the spinal cord, one finds that at birth the segments concerned with the nerve supply of the digestive tract range from the sixth thoracic, corresponding to the level of the stomach, to the twelfth thoracic, corresponding to the level of the ileocecal sphincter.[16] It is this old arrangement that accounts for the fact that pain arising in the small intestine is felt around the navel, and that pain arising in the colon is usually felt in the lower half of the abdomen. To be sure, the work of Jones and Pierce[17] indicates that pain due to distention of the cecum or of the hepatic and splenic flexures of the colon is likely to be felt at points in the abdominal wall almost overlying the segment irritated, but this may be due to pulls on folds of parietal peritoneum.

It can easily be seen now why so often the first colicky pain in an attack of appendicitis is felt around the navel, whereas the second, steady pain, due presumably to involvement of parietal peritoneum, is felt in the right lower quadrant of the abdomen. The shift is due to the fact that a more distally situated set of nerves has become involved. In cases of ulcer, and particularly of jejunal ulcer, similar shifts of pain due to slow perforation or to extension of infection can often be seen during the course of the disease. Rivers[18] is now making a particular study of these shifts and of their great diagnostic value.

The anatomist can again be helpful to the clinician when it comes to explaining why pains arising in embryologically different parts of the diaphragm are referred to different parts of the body[19] or why pain arising in the kidney can be felt in the testis but not in the scrotum.

SENSORY ENDINGS FEW AND FAR BETWEEN

The great insensitiveness of all the abdominal viscera seems to be due to the fact that they are poorly supplied with sensory nerve endings. Because these

8. (*a*) Brüning, F., and Gohrbandt, E.: Ein experimenteller Beitrag zur Pathogenese der Schmerzen bei der Darmkolik, Berl. klin. Wchnschr. **58:** 1431-1433 (Dec.) 1921; (*b*) Ein Beitrag zur Pathogenese der Schmerzen bei der Darmkolik und zur Sensibilität der Darmwand, Ztschr. f. d. ges. exper. Med. **29:** 367-387, 1922.

9. Davis, Loyal; Pollock, L. J., and Stone, T. T.: Visceral Pain, Surg., Gynec. & Obst. **55:** 418-427 (Oct.) 1932.

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11. Shaw, R. C.: Sympathetic System and Pain Phenomena, Arch. Surg. **27:** 1072-1080 (Dec.) 1933.

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13. Gerard, R. W.: Nerve Conduction in Relation to Nerve Structure, Quart. Rev. Biol. **6:** 59-83 (March) 1931.

14. Pette, H.: Das Problem der wechselseitigen Beziehungen zwischen Sympathicus und Sensibilität, Deutsche Ztschr. f. Nervenh. **100:** 143-164, 1927.

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17. Jones, C. M., and Pierce, F. D.: Mechanism and Reference of Pain from Lower Intestinal Tract, Tr. A. Am. Physicians **46:** 311-312, 1931.

18. Rivers, A. B.: Pain of Peptic Ulcer, Northwest Med. **33:** 6-10 (Jan.) 1934.

19. Capps, J. A., and Coleman, G. H.: Experimental Observations on the Localization of the Pain Sense in the Parietal and Diaphragmatic Peritoneum, Arch. Int. Med. **30:** 778-789 (Dec.) 1922.

endings are so far apart it is probable that a knife or hemostat, or even a glowing cautery, reaches so few that the stimulus is subliminal. Conditions are somewhat as they are in some parts of the skin where a morphine addict can find small areas in which the insertion of the needle is painless.

Obviously, then, if a stimulus applied to an internal organ is to produce pain, it must be spread over a considerable area; a long segment of bowel must contract powerfully, or a wide area of visceral peritoneum must be irritated. Only in this way can one explain some of the curious observations that have been made. Thus, Balfour has told me of resecting a stomach under infiltration anesthesia of the abdominal wall. The patient lay uncomplaining while the stomach was cut and burned and sewed, but he rose up and protested vigorously when the peritoneal cavity was washed out with warm physiologic solution of sodium chloride!

Some physiologists have suggested that stimuli such as pinching, sticking, cutting or burning are not adequate for or suited to the production of pain; perhaps the nerve endings are so constituted that they do not react to a single stimulus but only to oft repeated ones. Some such explanation seems to be needed at times to explain the curious fact that organs which can be so insensitive to some types of stimulation can be the seat of such severe pain.

As one would expect, the Vater-pacinian corpuscles, which are supposed to represent the commonest type of sensory nerve ending in the abdomen, are fewest and farthest apart in the most insensitive regions of the abdomen, and they are most numerous in the regions which the surgeon has learned to handle with care. They are found on the walls of the arteries [20] and this helps to explain the well known sensitiveness of the lesser omentum, the root of the mesentery, the foramen of Winslow and the cleft of the liver. Larger arteries are said to be more sensitive than small ones, and, as one would expect from this, the larger ones are supplied with the greater number of nerve endings. Actually it has not been easy to find sensory endings in vessels smaller than 60 microns in diameter.[21] As every clinician knows, the abdominal aorta is highly sensitive in some persons, and some types of pain seem to arise in it. In operations on the gallbladder, done under local anesthesia, it is the tying of the cystic artery that usually hurts most. Veins are less sensitive than arteries, and they carry fewer nerve endings.

The work of Sheehan showed that the Vater-pacinian corpuscles lie in peculiar groups on the head of the pancreas and in the capsule of the mesenteric lymph nodes. In the cat there are three times as many in the mesentery of the small intestine as in the mesocolon. More are to be found near the base of the mesentery than near the bowel, and there are many more in the region of the duodenum and jejunum than around the ileum.

The Vater-pacinian corpuscles are commonly supposed to respond to pressure, but the researches of Ramström [22] made this appear doubtful. He made small incisions in the abdominal wall and, inserting the finger, palpated the parietal peritoneum. In many cases even heavy pressure could not be felt, but sometimes it caused a colicky pain. Rubbing always caused distress.

It is probable that not all sensory nerve fibers end in corpuscles, and several variants have been described.

DIFFERENCES IN DIFFERENT PERSONS

One great difficulty in studying abdominal pain arises in the fact that different individuals vary markedly in their sensitiveness, and even one individual will vary in his response from time to time and under different conditions. The same difficulty is found in individual animals and in different species. Thus, Kast and Meltzer found it more difficult to study pain in cats and rabbits than in the dog. Furthermore, as Farr [23] has pointed out, observers differ in their conclusions because some are rough and others are gentle in their handling of the abdominal organs. One surgeon will slowly close a clamp on the mesentery of the appendix and conclude that this tissue is insensitive, while another will close the clamp quickly and thereby cause severe pain.

According to Farr,[24] Lennander,[25] Hesse,[26] Morley [2] and others, the insensitiveness of the abdominal organs is not necessarily altered by inflammation or congestion, but Kast and Meltzer [27] and others found that an inflamed segment is more sensitive than a normal one. Obviously, this comparison must often be difficult to make.

THE SENSITIVENESS OF THE PERITONEUM AND THE MESENTERY

As I said before, one of the first things that the student of abdominal pain must do is to get clearly in mind the difference in sensitiveness between parietal and visceral peritoneum. This is brought out clearly during a herniotomy under local anesthesia, when the insensitiveness of the intestine will be in marked contrast with the decided sensitiveness of the neck of the sac.

When operating under local anesthesia, the surgeon must always handle the parietal peritoneum with care: it must not be pinched or pulled on, and sponges must not be pulled out past it. On the other hand, a sponge may be removed painlessly from between two loops of bowel. As one would expect, the breaking of adhesions between bowel and abdominal wall is likely to cause pain, while adhesions between loops of bowel are insensitive.[28] It is not surprising, then, that traction on all those ligaments which are formed from or invested with parietal peritoneum is painful.

The excruciating pain under the right leaf of the diaphragm which comes when a liter or two of air or other gas is injected into the abdominal cavity is probably produced by the resulting separation of liver and diaphragm and the tension this puts on coronary and falciform ligaments.

20. Breslauer, Franz: Die Sensibilität der Bauchhöhle, Beitr. z. klin. Chir. **121:** 301-320, 1921. Buch, Max: Die Sensibilitätsverhältnisse des Sympathicus und Vagus mit besonderer Berücksichtigung ihrer Schmerzempfindlichkeit im Bereiche der Bauchhöhle, Arch. f. Anat. u. Physiol. **76:** 197-221, 1901. Sheehan, Donald: The Afferent Nerve Supply of the Mesentery and Its Significance in the Causation of Abdominal Pain, J. Anat. **67:** 233-249 (Jan.) 1933.

21. Breslauer.[20] Fröhlich, A., and Meyer, H. H.: Zur Frage der visceralen Sensibilität, Ztschr. f. d. ges. exper. Med. **29:** 87-113, 1922; Klin. Wchnschr. **1:** 1368-1369 (July 1) 1922. Waterson, David: On Pain, Lancet **1:** 943-946 (May 6) 1933.

22. Ramström, M.: Ueber die Funktion der Vater-Pacinischen Körperchen, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **18:** 314-328, 1908.

23. Farr, R. E.: Practical Local Anesthesia and Its Surgical Technic, Philadelphia, Lea & Febiger, 1923.

24. Farr, R. E.: Abdominal Surgery Under Local Anesthesia, J. A. M. A. **73:** 391-396 (Aug. 9) 1919; footnote 23.

25. (*a*) Lennander, K. G.: Beobachtungen über die Sensibilität in der Bauchhöhle, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **10:** 38-104, 1902; (*b*) Leibschmerzen, ein Versuch, einige von ihnen zu erklären, ibid. **16:** 24-46, 1906.

26. Hesse, Friedrich: Anwendung der Lokalanästhesie bei Eingriffen wegen Appendicitis, nebst Bemerkungen zur Erklärung appendicitischen Schmerzen, Deutsche Ztschr. f. Chir. **109:** 42-73, 1911.

27. Kast, L., and Meltzer, S. J.: Die Sensibilität der Bauchorgane, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **19:** 586-616, 1909.

28. Mackenzie, James: The Meaning and Mechanism of Visceral Pain: I. Sympathetic Reflexes, Brit. M. J. **1:** 1449-1454 (June 23); III. The Mechanism by Which Visceral Pain Is Produced, Brit. M. J. **1:** 1523-1528 (June 30) 1906.

Lennander [29] suggested that pain might be produced by the pressure of a gas-filled loop of bowel against parietal peritoneum, and particularly by the often distended splenic flexure pressing up against the diaphragm. The objection to this theory is that a markedly dilated splenic flexure is often seen by the roentgenologist in persons who are perfectly comfortable.

The perforation of a gallbladder against the visceral peritoneum surrounding a loop of bowel need not be productive of pain, but perforation of a jejunal ulcer against the root of the mesenteric fan or against parietal peritoneum is usually painful.

Most of the pain produced by gaseous distention of the bowel is supposed to be due to tension on mesenteric attachments and arteries, and all surgeons who operate under local anesthesia agree that mesenteries must not be pulled on if pain, nausea and vomiting are to be avoided. Since the nausea is produced even in patients under spinal anesthesia, the pathways are probably in the vagus nerves. A puzzling fact is that marked distention of the intestine which one would think would produce a pull on the mesentery is often painless.

The Omentum.—The greater omentum seems ordinarily to be insensitive except in the neighborhood of the larger arteries. Occasionally it is sensitive, and pain can be felt when portions are tied off (Neumann,[30] p. 486).

Peritonitis.—As one would expect, the pain produced by the escape of acid gastric content into the peritoneal cavity is terrific, and so is the pain produced in animals by the injection of 1 cc. of turpentine.[31] In man the intraperitoneal injection of a little vaccine made from colon bacilli or streptococci will produce the clinical picture of an acute generalized peritonitis.

One would expect to find peritonitis always very painful, but this is not the case. As C. F. Dixon has pointed out to me, there is a type of fulminating generalized peritonitis in which the symptoms are those of shock, combined with almost unbearable pain. In other cases an appendiceal abscess, walled off by loops of bowel, will suddenly leak and throw the patient into spasms of pain. Strange to say, simple drainage of such an abdomen will often put a stop to the pain although the inflammatory exudate is still spread widely over stomach, bowel and liver. In other cases generalized peritonitis will be painless, or peritonitis that began with pain will later become painless. Similar observations have been made in animals,[31] and it seems probable that nerve endings are so exhausted or so severely injured that they can no longer respond. In some cases cessation of pain may come with the cessation of all movement in the intestine. It may be like the cessation of pain that comes when an inflamed joint is immobilized. It is worth noting that Hoffmann, in his experiments, was able to produce a rigid contraction of the abdominal muscles only when he stimulated parietal peritoneum.

INSENSITIVENESS OF MOST OF THE ABDOMINAL ORGANS

The Stomach and Duodenum.—The stomach is so insensitive to cutting that it can easily be resected under local anesthesia. The gastric mucosa is normally insensitive to 0.5 per cent hydrochloric acid; [32] it is insensitive to strong faradic stimuli, and it is only slightly sensitive to irritants such as strong alcohol, pepper and mustard. Neumann (footnote 30, p. 495) told of a man who swallowed 3 Gm. of finely ground white pepper and noticed only a feeling of warmth and later some burning. According to Müller [33] the severe gastritis that is produced by the swallowing of escharotic poisons is not painful, and it is known that the gastritis that precedes or is commonly associated with cancer of the stomach is usually unaccompanied by symptoms.

As every brewery employee and every patient with severe diabetes insipidus knows, the stomach will tolerate a great deal of distention without the production of pain. Kinsella,[34] Apperly and other investigators have drunk water in large amounts as fast as they could get it down, but only with difficulty could they produce gastric discomfort. Even acute dilatation of the stomach is commonly painless. Occasionally distention of the stomach by a large meal seems to produce pain, but this may be due to pulls on bands running from the stomach to the diaphragm, spleen and parietal peritoneum. Patients with marked enlargement of the spleen can also be made very uncomfortable by a full meal.

A discussion of the modes of production of pain in cases of gastric and duodenal ulcer would take up so much space that I must reserve the topic for another paper. All I will say here is that in spite of much research there is as yet little agreement among workers. It is easy to say that the pain is due to the etching effect of the acid or to exaggerated peristalsis, but serious objections can be made to both of these thories. Thus, no one can as yet explain why a man without any defect in the gastric and duodenal mucosa demonstrable at operation or necropsy can have typical ulcer pain relieved by alkalis, while another man with a big florid ulcer can be free from symptoms. All I feel sure of is that, whatever the mechanism of ulcer pain may be, it can be turned on or off within an hour, perhaps by some sudden change in the irritability of the gastric nerves.

The Small Bowel.—The mucous lining of the small bowel is largely insensitive, as any one can see from the fact that the ulcerations of typhoid, tuberculosis and carcinomatosis are rarely painful until to the defect in the mucosa there is added either obstruction of the lumen of the bowel or else perforation of the wall. As Lennander [29] and Müller [35] have shown in patients with an intestinal fistula, faradic stimulation of the mucous membrane does not produce pain.

The tormina or severe griping pains seen with dysentery and cholera are due probably to contractions of the bowel. Mackenzie, while operating under local anesthesia, noticed that the patient felt pain when a loop of small bowel contracted, but others have remarked on the fact that powerful contractions can be painless. Maylard [36] has recorded the case of a physician with a mulberry stone in the substance of the kidney who

29. Lennander; [25] Weitere Beobachtungen über Sensibilität in Organ und Gewebe und über lokale Anesthesie, Deutsche Ztschr. f. Chir. **73:** 297-350 (June) 1904.

30. Neumann, Alfred: Ueber die Sensibilität der inneren Organe, Zentralbl. f. d. Grenzgeb. d. Med. u. Chir. **13:** 401-415, 449-460, 481-501 (July 30); 529-538, 573-593 (Aug. 13); 617-628, 656-676 (Sept. 8); 696-708 (Oct. 5) 1910.

31. Hoffmann, Adolph: Ursachen, Zustandekommen und klinischer Wert der Bauchdeckenspannung, Beitr. z. klin. Chir. **69:** 701-725, 1910.

32. Alvarez, W. C.: The Mechanics of the Digestive Tract, ed. 2, New York, P. B. Hoeber, 1928.

33. Müller, L. R.: Die Lebensnerven ihre Aufbau, ihre Leistungen, ihre Erkrankungen, Berlin, Julius Springer, 1924.

34. Kinsella, V. J.: The Mechanism of Pain Production in Abdominal Visceral Disease, with Special Reference to the Pains of Peptic Ulcer, M. J. Australia **1:** 64-84 (Jan. 21) 1928.

35. (*a*) Müller, L. R.: Ueber die Empfindungen in unseren inneren Organen, Mitt. a. d. Grenzgeb. d. Med. u. Chir. **18:** 600-641, 1908; (*b*) Das Vegetative Nervensystem, Berlin, Julius Springer, 1920; footnote 33.

36. Maylard, A. E.: Abdominal Pain: Its Causes and Clinical Significance, Philadelphia, P. Blakiston's Son & Co., 1905.

suffered with attacks of intestinal colic which apparently was reflex in origin. There was agonizing pain, which seemed to be due to contractions, traveling down the bowel and ending in tenesmus and the passage of flatus. Cycles of such pain followed one after another. Hugh Cabot tells me he has seen many instances of this type of "reflex."

Snell has reminded me also of the intestinal distress seen commonly in patients who are being fed through a fistula into the jejunum or who are learning to eat slowly after having submitted to subtotal gastrectomy. In them the pain due to distention or abnormal contraction, or perhaps to widespread stimulation of the mucosa, is accompanied by nausea, sweating and sometimes symptoms of mild shock.

My impression from personal experience is that although the small bowel is normally insensitive, there are times, as after the eating of irritant food, when the victim will become conscious of peristalsis and will say that he can feel the food passing over sore places in the bowel.

Ways of Causing Pain in a Hollow Organ.—There seem to be three main ways of producing pain in a hollow organ: one is by stretching the muscular wall, another is by causing it to contract powerfully, and another is by pulling on its mesenteric attachments. The work of a number of investigators indicates that neither distention nor contraction of the bowel will produce pain unless the mesenteric fan is pulled on,[37] but other observers, while admitting that a pull on the mesentery is a common cause for pain, have shown that it is not the only one, and that distention of the muscular wall alone will cause distress.[38] As these men pointed out, the mesentery will tolerate, without causing pain, degrees of stretching that are not seen with ordinary distention or contraction of the bowel. Unfortunately, it is still hard to explain why, at times, marked bloating is painless when at other times the presence of a little gas in the bowel causes great distress.

According to Ryle,[39] the severity of mechanically induced pain is in inverse proportion to the normal distensibility of the viscus. This, perhaps, can account for the fact that the most severe pains are produced when fairly thick-walled tubes with a small lumen such as the ureter, appendix, bile ducts or uterus are affected.

Powerful Peristalsis Not Always Painful.—Most physicians will probably think of intestinal pain as being due to cramplike contractions of the muscle in the wall of the bowel or to exaggerated peristalsis; and yet, when they stop to consider, they must remember that the lively peristalsis that is produced by purgation, or the powerful waves that can be seen traveling over the stomach in cases of congenital pyloric stenosis or of cancer of the pylorus, or over the colon in cases of Hirschsprung's disease or of cancer of the sigmoid flexure, are usually so painless that the patient is not even conscious of them.

Obviously there must be some extra factor present to produce pain, and this, I suspect, is an incoordination of peristalsis which leads to the conflict of waves and the putting of pressure on accumulations of food or gas in between. A wavelike contraction, no matter what its amplitude, is probably painless just so long as the walls of the viscus do not meet to produce water-tight or air-tight rings. Such tight rings approaching one another will put pressure on the contents of the tube and on the nerve endings in the wall. I once happened to swallow just as a wave of regurgitation started up my esophagus and when the two contractions met I felt a most unpleasant tearing feeling back of the sternum. Some of my friends have had similar experiences.

One type of pain is produced apparently by the failure of sphincters to relax at the proper time. Some pains in the upper part of the abdomen are supposed to be due to pylorospasm, and I believe that some of the pains that come at 11 a. m. and 4 p. m. are due to efforts made by the terminal loop of ileum to force its content past a contracted ileocecal sphincter. In such cases the taking of more food turns the tide in favor of the ileum, and this brings relief. Occasionally, one will find severe pain in the upper part of the abdomen associated with cardiospasm,[40] but what the mechanism is no one knows.

According to some investigators, the powerful contractions that can be produced in the bowel with the help of the faradic current or by the injection of barium chloride are not painful unless a sufficiently long segment of intestine is involved, or unless blood vessels are constricted or the mesentery is stretched.[41]

It is perhaps just as hard to explain why some powerful intestinal contractions produce pain and others do not as it is to explain why a cramp in the leg is painful when the more powerful contraction of the same group of muscles during a tug of war does not cause discomfort. In fact, the best way in which to relieve a cramp in the leg is to contract the muscles voluntarily, and some research workers have even suspected that contraction of the muscle of the gastric or intestinal wall will at times counterbalance the pull on nerve endings produced by distention and will thus relieve pain. Lewis[42] and his associates collected much evidence indicating that constant pain can be produced by rhythmic muscular contractions whenever an insufficient blood supply leads to the formation of toxic and nerve-irritating substances.

Distention of an organ need not be painful so long as it is brought about slowly. This is probably the explanation for the absence of distress in many cases of Hirschsprung's disease and hydronephrosis.

The Appendix.—The appendix is insensitive to cutting, crushing and cauterizing, but some patients operated on under local anesthesia can feel the tightening of the purse-string suture, and they usually can feel the tying of the ligature on the meso-appendix,[43] especially if the least pull is made on it. Traction on the mesentery of the terminal segment of ileum will sometimes produce the epigastric or umbilical pain that patients complain of at the beginning of an attack of appendicitis, and manipulation of the mesentery of the appendix usually produces nausea and retching. According to Harris,[44] pericecal membranes are usually insensitive, but any traction exerted on them resulting in a stretching of the parietal peritoneum will cause pain.

It is still far from clear why a diseased appendix causes pain. The fact that the first distress is felt in

37. Breslauer.[20] Fröhlich and Meyer.[21] Meyer, A. W.: Experimentelle Untersuchungen über die Sensibilität von Magen und Darm, Deutsche Ztschr. f. Chir. **151**: 153-163 (Oct.) 1919.

38. Brüning and Gohrbandt.[8b] Farr.[23]

39. Ryle, J. A.: Visceral Pain and Referred Pain, Lancet **1**: 895-900 (May 1) 1926; A Clinical Study of Pain, Brit. M. J. **1**: 537-540 (March 31) 1928.

40. Vinson, P. P.: Epigastric Pain, a Symptom of Esophageal Obstruction, Ann. Surg. **82**: 212-214 (Aug.) 1925.

41. Fröhlich and Meyer.[21]

42. Lewis, Thomas; Pickering, G. W., and Rothschild, Paul: Observations upon Muscular Pain in Intermittent Claudication, Heart **15**: 359-383 (July 27) 1931.

43. Farr.[24] Müller.[35b] Neumann,[30] p. 459.

44. Harris, M. L., in discussion on Summers, J. E.: Surgical Aspects of Intestinal Stasis From an Anatomic Point of View, J. A. M. A. **61**: 641 (Aug. 30) 1913.

the region of the navel suggests that the disease begins within the organ and affects the nerves that go out by way of the mesentery and the splanchnic nerves. Later, when the pain is in the right lower quadrant, the supposition is that the parietal peritoneum and a new set of nerves are involved. According to Hurst,[45] the diseased appendix when palpated through the rectum is very tender.

So far as I know, no one has puzzled sufficiently over the fact that often, in appendicitis, when things are still going badly within the abdomen, the pain lets up. The usual explanation is that the appendix has "burst"; but I wonder if this is a good word to use. So far as I can learn, the appendix perforates because part of it has become necrotic and not because it has been blown up like a toy balloon. If the apparent improvement were due to a release of pressure within the appendix, one should expect it to be the pain around the navel that stops, and after this one should expect a new, peritoneal, pain to appear around McBurney's point. Actually, my impression is that the pain that lets up and gives the patient a false sense of security is usually the one in the right lower quadrant. Perhaps in such cases something happens to bring insensitiveness to the peritoneal nerves. As Amberg [46] has suggested, it may be that the edema produced by infection can at times serve as an anesthetic much as does the edema produced by the surgeon when he injects saline solution into the skin.

In view of the marked insensitiveness of the appendix to cutting and crushing, it is hard to guess what change in it can account for the pain that is felt in the center of the abdomen. One can think of distention of the lumen or contraction of the muscle, or perhaps the formation of substances that irritate nerve endings. Because the meso-appendix is so sensitive to tension, Hesse [26] expressed the belief that the pain is due to stretching of this membrane brought about by the swelling or bending of the appendix. There must also be abnormal contractions in the adjacent ileum or cecum, contractions which often give rise to the vomiting of large amounts of intestinal fluid. Pain may be felt in regions distant from the appendix when there is extension of the inflammation along lymphatic channels.[47] Finally, as Mackenzie pointed out, symptoms such as rigidity of the psoas muscles and irritation of the ureter, bladder and uterus may be produced reflexly. He was once much impressed by the fact that, in a case in which symptoms of irritation in the pelvis were marked, operation showed that the appendix was nowhere near the bladder, uterus or psoas muscle.

If the present-day understanding of a dual sensory nerve supply to some parts of the intestine is correct, a physician, when faced by the common problem of chronic pain and soreness limited to the right lower quadrant of the abdomen, should actually refuse to think of appendicitis and should look more for disease in the peritoneal attachments of the cecum. If only because in one of my cases the pain and soreness in the right flank remained not only after appendectomy but also after excision of the right half of the colon, I always think of disease somewhere along the nerve tracts that supply the peritoneum in the region of the cecum. Theoretically, if smoldering disease in the appendix can produce pain anywhere, it should be felt where it commonly is felt, around the navel or in the epigastrium. Another reason for the radiation of appendiceal pain to the epigastrium may be that the functions of the stomach, duodenum or small bowel are disturbed secondarily to disease in the right iliac region.

The Colon.—In view of the complete insensitiveness of the colon when it is brought up into a wound, as in the formation of an artificial anus, it is remarkable how much discomfort and pain this part of the intestinal tube can cause many nervous women, and how much tenderness is complained of when it is rolled under the fingers. In two patients with a fistula into the cecum, Lennander [25a] found the mucous membrane to be insensitive. Rutherford,[48] who studied another patient with a cecal fistula, found that any attempt to pass a sound or a finger through the ileocecal sphincter caused unbearable pain, due probably to distention of the muscle.

As every proctologist knows, the mucous membrane of the rectum and sigmoid flexure is insensitive to cutting, crushing or burning. Patients protest only when one pulls on the attachments of the bowel, and then they feel the pain or distress in the left lower quadrant of the abdomen.

The pain of diverticulitis may be due partly to spasm of the colonic wall, partly to obstruction of the lumen, and partly to the irritant effects of inflammatory products on nerves in the parietal peritoneum.

Kinsella [34] and others who have watched the colon during the giving of a barium enema have seen powerful contractions which were associated with pain. It is most important from a diagnostic point of view to note that all those who have observed such pains agree that they are felt only in the lower part of the abdomen, below the navel.

In the case of mucous colitis, it may well be that toxic or irritant substances are excreted from the blood into the mucosa. Sometimes the pain will stop following the exclusion of a few hurtful substances from the diet.

The Gallbladder and Bile Ducts.—The method of production of gallstone colic and other types of pain in the biliary tract is so poorly understood and there is so much to be said about the subject that I cannot go into it fully at this time. All I shall say is that experiments have shown, both in animals and in man, that the gallbladder is insensitive to crushing or cutting. Sudden distention of the organ will produce some of the feelings of bloating and indigestion that are so annoying to patients with cholecystitis, but usually not the pain.[49] The common duct is much more sensitive, and distention here will produce pain, nausea, vomiting and that difficulty in breathing which is so characteristic of biliary colic. The puzzling feature is that the pain produced in experiments on human volunteers was usually epigastric and did not radiate typically to the back.[50]

There are several reasons, then, for believing that the pain in the back must be due to some irritation, perhaps inflammatory in origin, of nerves that go out by way of the posterior parietal peritoneum. It is possible also that during simple distention of the uninflamed

45. Hurst, A. F.: The Goulstonian Lectures on the Sensibility of the Alimentary Canal, London, Hodder & Stoughton, Ltd., 1911.

46. Amberg, Samuel: Personal communication to the author.

47. Braithwaite, L. R.: The Flow of Lymph from the Ileocecal Angle, and Its Possible Bearing on the Cause of Duodenal and Gastric Ulcer, Brit. J. Surg. **11**: 7-26 (July) 1923. Vorschütz, Elberfeld: Discussion, Verhandl. d. deutsch. Gesellsch. f. Chir. **45**: 187-188, 1921.

48. Rutherford, A. H.: The Ileocecal Valve, New York, Paul B. Hoeber, 1914.

49. For exceptions see Mitchell, J. F.: Sensibility of the Peritoneum and Abdominal Viscera, J. A. M. A. **57**: 709-712 (Aug. 26) 1911, and Ivy, A. C.; Voegtlin, W. L., and Greengard, Harry: The Physiology of the Common Bile Duct: A Singular Observation, J. A. M. A. **100**: 1319-1320 (April 29) 1933.

50. Ogilvie, W. H.: Some Notes on the Surgical Aspects of Gallstone Disease, Guy's Hosp. Rep. **75**: 78-97 (Jan.) 1925. Zollinger, Robert: Observations Following Distention of the Gallbladder and Common Duct in Man, Proc. Soc. Exper. Biol. & Med. **30**: 1260-1261 (June) 1933.

biliary tract the experimenter does not stimulate those particular fibers in the splanchnic bundle which, on arriving in the dorsal region of the spinal cord, send out impulses to sensitize the region under the right scapula.

Because biliary colic can be seen commonly in the absence of gallstones, in the absence of a gallbladder, and even in cases in which most of the common duct has been destroyed by scarring, I have wondered if at times it could be due to powerful muscular contractions in the pars pylorica of the stomach or in the first portion of the duodenum. This does not seem probable, because irritation of these regions by ulcers produces such a different type of pain with a different point of reference and a different type of radiation. One suggestive observation is that of Bloomfield and Polland,[51] who blew up a balloon in the third portion of the duodenum of volunteers and found that this sometimes produced pain with a distribution like that of biliary colic. Obviously, further observation and experiment are needed in this field.

Liver, Spleen, Pancreas and Kidney.—All observers agree that the parenchyma of these organs is markedly insensitive. As a result, abscesses and infarcts are usually painless unless the organ is rapidly distended, or unless inflammation or irritation reaches nerves in the parietal peritoneum or along the arteries. Thus in the case of the liver, passive congestion that arises suddenly, as in an attack of paroxysmal tachycardia, or the rapid growth of a gumma or an echinococcus cyst will cause pain, while the slow growth of huge carcinomatous metastatic growths may take place silently.[52]

There are reasons for believing that, in some of the cases in which extensive injury has been done to the liver by poisons such as arsphenamine or cinchophen, pain arises because of a widespread chemical stimulation of nerves. The objection to this theory is that in many cases severe hepatitis does not give the patient even local discomfort. While fully cognizant of the difficulties of my position, I still cling to the view that a liver that looks normal at operation can be the seat of severe pain, just as so commonly it is the seat of marked tenderness to palpation.

In the spleen, infarcts seldom cause pain unless they involve the diaphragmatic surface and produce adhesions to the parietal peritoneum. Barcroft, who has done much work on dogs with the spleen exteriorized and left uncovered outside the abdomen, told me that he has never seen any signs of pain resulting from manipulation of the organ.

The pancreas is usually an uncomplaining organ but it responds painfully to acute injuries and particularly to that acute form of inflammation which is accompanied by fat necrosis in the adjacent tissues. Carcinoma of the pancreas usually produces pain at some stage of the disease but I suspect that this comes usually when the growth invades other structures or blocks a duct.

In the kidney, pain is due usually to diseases that produce sudden swelling, such as acute glomerulonephritis, infarct formation or rapidly forming hydronephrosis. Strange to say, even the marked back pressure in the kidney pelvis that is produced when the ureter is inadvertently tied is often painless, and in my experience Dietl's syndrome is rarely encountered.

Ureter.—The ureter is tolerant of slow distention and it is often remarkably tolerant to the presence of a stone. At operation, pain is most likely to be produced when the peritoneal covering of the ureter is pulled on or traumatized.

Urinary Bladder.—The urinary bladder is only slightly sensitive to ordinary laboratory stimuli,[53] but, as every one knows, distention, with the resultant muscular contractions, can cause pain. Müller[33] expressed the belief that the pain of tuberculous cystitis is due to muscular contractions. In operating under local anesthesia, much of the pain comes when the attachments of the bladder are pulled on.

The Uterus, Ovary and Tubes.—The uterus is not very sensitive to cutting, and several writers (Neumann,[30] pp. 411 and 708) have commented on the fact that in the past, when cesarean section had to be done without anesthesia, the incision through the uterus was not very painful. In operations under local anesthesia, much can be done to the uterus so long as its ligaments are not pulled on. The part of a curettement that is really painful is the dilation of the cervical canal. Severe menstrual pain seems to be due often to the efforts of nature to expel blood clots through this narrow channel. The powerful uterine contractions that occur during the later months of pregnancy are not distressing but, as every mother knows, the contractions of labor can be agonizing.

At operations under local anesthesia the ovary may be somewhat insensitive, but the pedicle is often sensitive. During pelvic examinations the ovary itself is commonly sensitive to pressure.

ABDOMINAL LYMPH NODES

Although in many cases the abdominal lymph nodes become inflamed or enlarged without producing symptoms, in others such inflammation appears to produce soreness and pain.[54]

CELIAC GANGLIONS

According to some writers the celiac ganglions are very sensitive, and according to others they are not (Neumann,[30] p. 669). Their involvement in inflammatory masses due to the perforation of gastric or duodenal ulcers or their infiltration with carcinoma cells probably accounts at times for severe pain that bores straight through to the back.

It seems probable that there must be many cases of abdominal pain in which the trouble originates in disease of ganglions or nerves or nerve endings, but so far only an occasional one can be diagnosed. Most of the ganglioneuromas appear to be painless.

ABDOMINAL BLOOD VESSELS

Any one who has ever had to thaw out frozen fingers knows what excruciating pain can arise in tissues which for a time have been deprived of blood, and there are reasons for believing that not infrequently vascular disease or vascular spasm is a cause of abdominal distress and pain. The subject is too large to be treated adequately in the confines of this paper.

SOME UNUSUAL CAUSES

I shall have to wait for another time to discuss the possible mechanisms that produce the severe pains seen

51. Bloomfield, A. L., and Polland, W. S.: Experimental Referred Pain from the Gastro-Intestinal Tract: II. Stomach, Duodenum and Colon, J. Clin. Investigation **10**: 453-473 (Aug.) 1931.

52. Mackenzie.[28] Schmidt, Rudolph: Pain, Its Causation and Diagnostic Significance in Internal Diseases, ed. 2, Philadelphia, J. B. Lippincott Company, 1911.

53. Müller.[35a] Waltz, Wilhelm: Ueber die Blasensensibilität, Deutsche Ztschr. f. Nervenh. **74**: 278-284 (June) 1922.

54. Alvarez, W. C.: Mesenteric Lymphadenitis in Adults, a Cause of Pseudo-Appendicitis, Indigestion, Diarrhea and Arthritis, M. Clin. North America **14**: 605-617 (Nov.) 1930.

with some diseases of the abdominal nerves, with disease of the abdominal arteries, with giant urticaria and purpura and disease in the spinal cord and brain, disease in the thorax, diabetic ketosis, Addison's disease, acute generalized infections, malaria and lead poisoning.

SUMMARY

The main sensory pathways out of the upper part of the abdomen lie along the major splanchnic nerves. Most of the sensory nerves in the abdomen probably do not belong to the autonomic system and are no different from those in the rest of the body. Evidence is accumulating to show that certain types of severe and intractable pain are due to some abnormality in the sympathetic nerves.

The abdominal viscera are insensitive to such stimuli as cutting, crushing and burning. The few sensory nerve endings present are associated mainly with arteries. The parietal peritoneum is everywhere well supplied with nerves. If a stimulus to an abdominal organ is to be sensed as pain, it must be applied over an area wide enough to affect many of the scattered nerve endings.

Much of the pain produced by distention of the bowel appears to be due to tension on the root of the mesentery.

The stomach is normally so insensitive to acids and other irritants that it is difficult to explain the pain of ulcer. As yet no one of the explanations proposed is adequate or satisfying. The salient fact is that at times the nerves appear to become so sensitized that pain can be felt even in the absence of strong acid or of a defect in the mucous membrane of the stomach and duodenum.

Pain is produced in a hollow organ when powerful contractions struggle to force material past an obstruction; it is produced also by rapid distention or by tension on the mesentery.

The distribution of sensory nerves in the abdomen follows somewhat the original segmental arrangement existing in the embryo. For this reason pain that arises in the stomach, duodenum and gallbladder is usually felt above the navel, and pain arising in the colon is usually felt below the navel. This point is helpful in diagnosis.

Pain arising in the appendix itself is usually felt around the navel, while pain arising in the peritoneal covering of the organ or in the cecum is felt in the right lower quadrant of the abdomen. Long continued pain and soreness around the cecum should suggest the presence not of appendicitis but of chronic perityphlitis, or typhlitis, or of disease somewhere along the parietal (not mesenteric) sensory nerve tracts supplying the cecal region.

The mechanism of biliary colic is not clear. Such colic is seen in the absence of gallstones, in the absence of a gallbladder and, rarely, even in the absence of most of the common bile duct. Experimental distention of the gallbladder usually does not produce pain, but distention of the ducts does produce pain. What is puzzling is that, in most of the experiments that have been done, this pain has not radiated typically to the right scapula.

The solid organs of the abdomen are so insensitive that the only thing that seems to cause pain in them is either rapid distention of the capsule or the extension of inflammation from them to adjacent parietal peritoneum.

It is suggested that some forms of abdominal pain are due to the accumulation of irritant metabolites or toxins in the tissues. Pain may also be caused by any disease or spasm in arteries which leads to injury of the tissues through the development of ischemia.

THE DIFFERENTIAL DIAGNOSIS OF ACUTE POLIOMYELITIS

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There are few infectious diseases so frequently incorrectly diagnosed as acute poliomyelitis. In a survey of this disease over a period of four years at the Herman Kiefer Hospital in Detroit, Gordon [1] found that in only half of the 446 patients admitted with a diagnosis of poliomyelitis was the diagnosis confirmed by clinical study and laboratory investigation. Such a finding means that there is need for improvement in diagnostic technic. By studying the mistakes and suggesting, when possible, how these mistakes can be avoided, the profession should be able to increase its diagnostic accuracy. With this purpose we record our observations during the epidemic of poliomyelitis in New York in 1931. There were 1,123 patients admitted to the Willard Parker Hospital with a diagnosis of poliomyelitis. After careful examination and observation, poliomyelitis was excluded in 113. These 113 patients form the material for our presentation. This of necessity limits the number of conditions discussed, and no attempt will be made to present a complete differential diagnosis of poliomyelitis.

The clinical course of poliomyelitis has been fairly definitely divided into three stages, as shown in the accompanying chart. The first is the period of general invasion, which may last one or two days. During this stage the diagnosis of poliomyelitis is extremely difficult, if not impossible. The patient may complain of headache and malaise and may have some gastro-intestinal disturbance and slight fever. Physical examination of the patient often reveals nothing abnormal, or the symptoms and signs may be those frequently found in children with a mild gastro-intestinal upset or a common cold. This stage is frequently either not present or entirely overlooked.

Kramer [2] has shown that some individuals have developed an immunity as a result of exposure to the disease, even though they showed no symptoms of infection or possibly only the indefinite manifestations of the first stage. He examined the blood of twelve persons who had been in intimate contact with a patient with poliomyelitis. A test for a specific neutralizing substance made a few days following the contact showed all twelve to be nonimmune. Six of the twelve were available for retesting five months later and at that time were found to have become immune. During the five months they had not suffered from any illnesses that could be suspected as being abortive poliomyelitis. That such

From the Willard Parker Hospital and the Department of Pediatrics, Cornell University Medical College.

1. Gordon, J. E.: Diagnosis of Early Poliomyelitis, J. A. M. A. **99**: 1043 (Sept. 24) 1932.
2. Kramer, S. D.: Immunity to Poliomyelitis in the General Population. J. A. M. A. **99**: 1048 (Sept. 24) 1932.

cases, whether or not they show clinical symptoms of the first stage of the disease, may be a source of infection was shown by Wickman [3] in his classic observations more than twenty-five years ago.

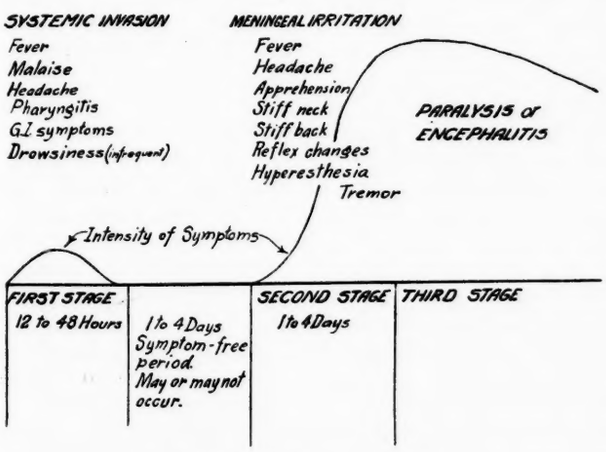
In some cases the infectious process continues and localizes in the central nervous system to produce the second or preparalytic stage. There may be an asymptomatic interval of several days between the first and second stages, or the disease may continue without interruption. During the second stage the symptoms are primarily those of meningeal irritation. The patient may be apprehensive, complain of headache and malaise and have fever. Examination may reveal ataxic tremor, stiffness of the spine, resistance to anterior flexion of the head, diminished or absent superficial reflexes, hyperactive, hypo-active or unequal deep reflexes, and sensory disturbances. During this stage, in contrast to the initial period of systemic invasion, the patient exhibits something more tangible on which to base a diagnosis. However, it is important to exclude other diseases in which the central nervous system is primarily or secondarily involved.

The third stage is due to more serious damage in the central nervous system and is evidenced by paralysis or by symptoms of encephalitis. This phase may occur shortly after the first symptoms of meningeal irritation or after an interval of several days.

FIRST STAGE

The first stage of the disease simulates what is generally considered a cold or minor gastro-intestinal upset. Since Wickman first emphasized the importance of what he termed abortive poliomyelitis, various observers [4] have stated that, during an epidemic, abortive poliomyelitis (those cases not progressing further than the first stage) constitutes as high as from 50 to 80 per cent of the total cases.

From the history or physical signs twenty-eight of our 113 cases could be considered as supposedly falling



Clinical course of poliomyelitis.

into the first stage of the disease. There were twenty-eight patients with ten separate conditions in this group, as shown in the accompanying table. Half of the patients had either pharyngitis or gastro-enteritis. There were also two patients with serum reactions, two with evidence of trauma, and one with typhoid. It cannot be reiterated too often that a careful history and physical examination is important. A history of trauma or recent injection of serum, the finding of an acute follicular tonsillitis or severe pharyngitis explains the condition found in many of the patients. We have observed that in early poliomyelitis the pharyngitis is mild and does not look beefy red or produce an exudate on the tonsils. The gastro-intestinal symptoms that may occur in poliomyelitis are of short duration and are not severe. Examination of the spinal fluid in the first stage of poliomyelitis gives no helpful information. Extreme drowsiness and high fever during the period of systemic invasion have been reported in some epidemics,[4] but we have not encountered such cases.

TABLE 1.—*One Hundred and Thirteen Cases Referred to the Willard Parker Hospital with the Diagnosis of Poliomyelitis, Listed According to the Stages of Poliomyelitis Which They Simulated*

Condition	Cases	Stage of Poliomyelitis Simulated I	II	III
Pharyngitis	16	8	7	1
Gastro-enteritis	14	6	6	2
Pneumonia	9	2	4	3
No diagnosis	7	2	5	..
Tonsillitis	7	3	4	..
Tuberculous meningitis	5	..	4	1
Injury	6	1	2	3
Hysteria	4	..	2	2
Cerebral hemorrhage or arteriosclerosis	4	..	1	3
Cerebrospinal meningitis	4	..	2	2
Epiphysitis or arthritis	3	..	..	3
Rheumatic fever	3	..	3	..
Otitis media	2	2	..	..
Serum reaction	2	2	..	..
Torticollis	2	..	2	..
Neuritis	2	..	..	2
Osteomyelitis	2	1	1	..
Grip	2	1	1	..
Synovitis	2	..	..	2
Myositis	1	..	1	..
Adenitis	1	..	1	..
Congenital syphilis	1	..	..	1
Abscess	1	..	1	..
Typhoid	1	1	..	..
Tetanus	1	..	..	1
Vaccination	1	..	1	..
Bell's palsy	1	..	..	1
Epilepsy	1	..	..	1
Encephalitis	1	..	..	1
Cellulitis	1	..	..	1
Focal myelitis	1	..	..	1
Subperiosteal abscess	1	..	..	1
Purpura with arthritis	1	..	1	..
Transient contractures of unknown origin	1	..	1	..
Acute appendicitis	1	..	1	..
Epidural abscess	1	..	..	1
Total	113	28	50	35

Gordon [1] has aptly said:

> Too often the well appreciated advantages of early diagnosis tend toward overemphasis of poliomyelitis particularly during the period of seasonal prevalence and, if the disease is epidemic, with the result that other conditions, of themselves as urgent as poliomyelitis, suffer delay in management because of confusion with that disease. No less stress must be placed on determining poliomyelitis before paralysis, but need does exist for more critical judgment in eliminating allied conditions. The general opinion among physicians that the clinical diagnosis of poliomyelitis has not reached the exactness of other communicable diseases finds ready substantiation.

Some of our children had mild pharyngitis or gastro-enteritis that might have been poliomyelitis. None of these patients gave a history of recent contact with any one with an acute illness. This, of course, does not exclude the possibility of some unrecognized contact. As an additional precaution, we kept the children under observation one week after their symptoms subsided, to make certain that we were not dealing with a so-called dromedary type of invasion. Because of the two

3. Wickman, Ivan: Acute Poliomyelitis, translated by W. J. A. M. Maloney, Nervous and Mental Disease Monograph Series 16, New York, 1913.

4. Draper, George: Acute Poliomyelitis, Philadelphia, P. Blakiston's Son & Co., 1917.

definite masses or humps of symptoms in some cases, the analogy to the arrangement of the dromedary's back was used by Draper [4] to express this type figuratively.[5]

SECOND STAGE

The signs of meningeal irritation which occur during the second or preparalytic stage of poliomyelitis also occur in other diseases. Fifty patients were referred to the hospital supposedly with preparalytic poliomyelitis. Minor illnesses made up almost half of this group. Two cases of tuberculous meningitis were erroneously diagnosed as poliomyelitis in the admitting room. Spinal fluid examination before admission revealed a fluid under slightly increased pressure containing 30 cells, which were mostly mononuclears, slightly increased globulin and a normal amount of sugar. Convalescent poliomyelitis serum had been given intravenously. Tubercle bacilli were later found in the spinal fluid obtained in the hospital, but the sugar content remained normal. This indicates the difficulty in differentiating early tuberculous meningitis from preparalytic poliomyelitis when the sugar content of the spinal fluid remains high. At the time of admission the duration of the meningeal irritation was against the diagnosis of poliomyelitis, but the family physician with the facilities at his disposal was not in a position to make a more accurate diagnosis.

Two cases of pneumonia were incorrectly diagnosed as poliomyelitis on admission. Both were in young children who had meningeal irritation without definite signs in the lungs. The pulmonary signs became evident on subsequent examinations. The spinal fluid in each case was normal, but the blood count showed a greater leukocytosis and a larger percentage of polymorphonuclear cells than were usually found in poliomyelitis. A normal spinal fluid in the presence of meningeal irritation rarely occurs in poliomyelitis. The lesion in one case was a lobar pneumonia of the right upper lobe and in the other a right apical bronchial pneumonia. Two other cases of pneumonia showed definite signs in the lungs at the time of admission.

There were six children with gastro-intestinal symptoms admitted with a diagnosis of preparalytic poliomyelitis. The spinal fluids of all six patients were normal. The gastro-intestinal symptoms occurring at the onset of poliomyelitis are relatively mild, whereas repeated vomiting, frequent bloody, mucoid stools, dehydration or abdominal pain are rare in this disease. When repeated vomiting does occur in poliomyelitis, there is usually a rapid onset of paralysis with bulbar symptoms predominating. It should be noted that slight resistance of the neck to flexion of the head, hyperactive or sluggish deep reflexes may occur in acute gastro-enteritis. In doubtful cases the duration and severity of the symptoms will often help in excluding a diagnosis of poliomyelitis.

The following are illustrative cases of other conditions that were encountered:

One child was admitted with a history of vomiting, headache, drowsiness and epistaxis. The temperature was 104 F. and the pharynx was red. Examination at the time of admission revealed slight stiffness of the neck, a nasal twang to the voice and irregularity in the patellar reflexes. The spinal fluid was normal. After further observation a diagnosis of grip was made.

This case again points out that a child with a high temperature may have slight nuchal resistance and, when differences in reflexes are slight, they should be carefully reexamined. The nasal twang to the voice was apparently due to the child's drowsiness.

A boy, aged 12 years, was admitted with a history of pain in the shoulders and neck. There was no fever. The patellar reflexes were hyperactive. Examination revealed that the muscles in the back of the neck were tender. There was pain on extreme flexion of the head. The spinal fluid was normal. The myositis gradually subsided and the patient was discharged after six days.

There were five patients in whom it was difficult to exclude poliomyelitis with certainty.

One child, aged 8 years, was admitted with a history of fever, headache, malaise, pain in the neck and legs for one day and constipation for two days. The temperature was 103.8 F. Neurologic examination in the hospital was negative. Following catharsis the temperature remained normal after the second day in the hospital. The spinal fluid was normal.

Another child, aged 6 years, was admitted with a history of fever, headache and pain in the back of the neck. The child was acutely ill, with a temperature of 103 F.; the tonsils were enlarged and reddened, the patellar reflexes were hyperactive and there was slight nuchal resistance. The following day the temperature was normal and all symptoms were gone.

Another child, aged 4 years, whose brother had been under observation for poliomyelitis at the hospital for four days three weeks before, was admitted with a history of fever, vomiting and pain in the back and neck. The child was acutely ill, with a temperature of 104 F., and there was slight resistance on extreme flexion of the head. The following day the temperature was normal. The spinal fluid was normal.

Two other children presented similar pictures. These children were all acutely ill for a day or two, there were no, or only slightly abnormal, neurologic signs, and other symptoms were those of pharyngitis or tonsilitis. They were kept under observation to exclude the possibility that we were dealing with the dromedary type of invasion. The children were well when discharged with a diagnosis of "not poliomyelitis." It seems that some of the children were more ill than those usually exhibiting the early symptoms of poliomyelitis as we have seen them. Severe symptoms at the onset of poliomyelitis are associated with a virulent infection and are usually followed by definite symptoms of invasion of the central nervous system. We felt that, even if our patients had had either abortive or preparalytic poliomyelitis, there was little chance of their spreading the disease after their discharge. Since then Paul, Salinger and Trask [6] have examined the nasopharyngeal washings of children who had minor illnesses (similar to abortive poliomyelitis) in a small community in which poliomyelitis had occurred. The washings from twelve children were examined at different stages of their illness. Virus was demonstrated in two cases in which the washings were taken within forty-eight hours after the onset of the illness. This suggests that the period of contagion is of short duration.

THIRD STAGE

Twenty conditions occurred in the third group of patients admitted with a history or symptoms suggesting the third, or paralytic, stage of poliomyelitis. Two children with gastro-enteritis and one with pharyngitis each had a history of weakness of the legs. Three

5. Stimson has recently pointed out that this term is descriptively inaccurate. A dromedary (Arabian camel) has but one hump; it is the Bactrian camel that has two (Stimson, P. M.: Common Contagious Diseases, Philadelphia, Lea & Febiger, 1931).

6. Paul, J. R.; Salinger, Robert, and Trask, J. D.: "Abortive" Poliomyelitis, J. A. M. A. **98**: 2262 (June 25) 1932.

patients with obvious injuries were brought to the hospital because they could not move one of the extremities. Two children refused to move their legs because they had osteomyelitis. Swelling and constant marked localized tenderness do not occur in poliomyelitis. One adult had taken huge doses of some hypnotic and a multiple neuritis had developed. A child, aged 4 years, refused to move his arm because he had cellulitis of the chest wall with axillary adenitis. Three patients with pneumonia were admitted in respiratory distress and two of these had a history of weakness of the legs and stiffness of the neck. At the time of admission there were definite signs of pneumonia with difficulty in the expiratory phase of respiration. In the respiratory paralysis of poliomyelitis the respiratory difficulty is in inspiration. Cough is an infrequent symptom in poliomyelitis. Several elderly patients with cerebral accidents were admitted to the hospital and in each instance the diagnosis was obvious.

The following are brief outlines of some of the more instructive cases:

A boy, aged 8 years, was admitted with a history of convulsions, cyanosis, generalized rigidity and fever. He had ptosis of the right upper lid. The patient presented the characteristic symptoms of tetanus and recovered after appropriate treatment.

We did not observe convulsions and generalized muscular rigidity in any of our cases in 1931. However, in 1933 convulsions and muscular spasticity occurred in a child, aged 17 months, who had a bulbocerebral lesion. Patients with respiratory failure sometimes have convulsive seizures (probably asphyxial) a short time before death.

A child, aged 12 years, was admitted with a history of anorexia, diarrhea, backache, irritability and paralysis of the left lower extremity. Careful examination revealed involvement of the left hip joint. Roentgenograms and tuberculin tests were negative. The child was transferred to an orthopedic hospital with a diagnosis of early epiphysitis or synovitis.

Another child, aged 15 months, was admitted with a history of irritability, vomiting, fever, weakness of the legs and pain in the right arm. There was swelling and bluish discoloration of the skin around the right elbow joint. The lower extremities were normal. The child was transferred to Bellevue Hospital, where pus was aspirated from the joint.

Poliomyelitis should have been readily excluded in each case. Limitation of passive motion, if it occurs at all, is minimal in poliomyelitis, and swelling does not occur.

A well developed girl, aged 16 years, was admitted with a history of convulsions and coma. The diagnosis at the time of admission was not clear and she was admitted for observation. The following day there was a complete right flaccid hemiplegia due apparently to a localized cerebral lesion. The patient lingered in semicoma for two days and then died. A large cerebral hemorrhage was found at autopsy.

When a case of meningococcic meningitis is considered to be poliomyelitis it is a serious error in diagnosis. The longer the delay in administering specific serum to a patient with meningococcic meningitis, the less favorable the prognosis. This is particularly true in infants, who, unfortunately, present the most difficulties in diagnosis. The following cases are illustrative:

An infant, aged 15 months, was sent to us from another hospital with a history of fever of several days' duration and of inability to stand on the right leg. The cell count in the spinal fluid was reported as 30. On admission the infant had a temperature of 104 F., stiff back and slight fulness of the fontanel. The spinal fluid was under increased pressure; there was no sugar, a slight increase in globulin and 660 cells, most of which were polymorphonuclears. Gram-negative cocci were found on direct smear. The child recovered following appropriate treatment.

There should have been less doubt about the diagnosis in another child, aged 4½ years, even though there was a right facial paresis and absent patellar and achilles reflexes. The child was toxic, the temperature was 104 F., and bilateral Brudzinski and Babinski reflexes, stiff neck, and a petechial rash were present. The spinal fluid was under increased pressure and cloudy, with a marked increase in globulin and no sugar. Meningococci grew on culture. The child recovered.

Isolated paresis and absent deep reflexes may occur in cerebrospinal meningitis. The presence of a petechial rash and signs of meningitis in an acutely ill, toxic child should leave little doubt as to the proper diagnosis, even before the spinal fluid is examined.

A girl, aged 18 years, had fainted a week before and then was unable to move her arms and legs. Three days later she was able to move her left arm and leg. At the time of admission the temperature was normal and there were no signs of meningeal irritation. She could not stand because of severe pain in the muscles of the right leg. There was marked dermographia. The grip of the left hand was weak. Movements of the right foot were sluggish. All deep reflexes were diminished. There was hyperesthesia over the entire right leg and an area of hypesthesia on the sole of the right foot. The spinal fluid was normal. A neurologic consultant stated that she had an emotional disturbance (stepfather difficulty and new position for three days). The diagnosis was hysteria.

An infant, aged 8 months, was admitted after an illness of two days, which started with fever, vomiting and paralysis of the left leg. At the time of admission the temperature was 100 F., and the respiration rate 30. The infant did not move the left leg but all deep reflexes were active. The spinal fluid was normal. The blood count showed 16,000 leukocytes with 73 per cent polymorphonuclears. The following day the temperature rose to 103 F. A roentgenogram of the hip was negative. The spinal fluid twenty-four hours after admission showed 50 cells, mostly polymorphonuclears, increased globulin and decreased sugar. Blood culture was negative. The temperature continued to rise. Signs of meningeal irritation developed and the child died thirty-six hours after admission. Autopsy revealed a purulent arthritis of the hip and early meningitis.

A white girl, aged 18 years, was admitted with a history of pain in the lumbar region of the back and weakness and numbness of the left leg of two days' duration. At the time of admission the temperature was 100 F. There was decreased muscle power in the entire left lower extremity and diminished sensation to touch. The knee jerk was hyperactive and the abdominal reflexes were diminished on the left side. A roentgenogram of the spine was negative. A blood count revealed 5,100,000 red cells, hemoglobin 75 per cent, white cells 10,350 with 76 per cent polymorphonuclears. Chemical examination of the spinal fluid gave negative results and there were 8 mononuclears per cubic millimeter. Dr. Burchell, in neurologic consultation, made a diagnosis of focal myelitis on the left side of the cord at the second lumbar segment. She gradually improved and was discharged after nine days.

A white youth, aged 20, had a boil on the cheek a week before admission. Three days later he had a fever and complained of pain in the lumbar region of the back. He was treated for lumbago. The day before admission, paralysis of the legs developed. At the time of admission he was acutely ill; the neck and back were stiff and deep reflexes of the lower extremities as well as the abdominal and cremasteric reflexes were absent. Accurate sensory determinations could not be made, but there was apparently no response to pain or touch in the lower extremities. The bladder was distended. The temperature was 103.2 F. Ten cubic centimeters of yellow

tinged fluid under slightly increased pressure was obtained by lumbar puncture. The sugar content was normal, the albumin and globulin were greatly increased and the cell count was 4 mononuclears. Culture of the fluid showed no growth. A blood count revealed: red blood cells, 3,620,000; hemoglobin, 75 per cent; white blood cells, 21,800 with 84 per cent polymorphonuclears. He soon became stuporous. On the second day in the hospital his breathing became rapid and there were signs of pulmonary infiltration. A roentgenogram showed the vertebrae to be normal. Blood taken on the fourth day in the hospital yielded staphylococci on culture. The temperature remained between 104 F. and 106 F. There was retention of urine and feces. The patient became worse and died five days after admission. The autopsy revealed multiple abscesses of the lungs and epidural abscesses about the cord.

COMMENT

As in other diseases, the greatest difficulty in making a diagnosis in poliomyelitis is to make it early in its course. During the first stage, the period of systemic invasion, the greatest problem is presented by mild infections of the upper respiratory tract and gastrointestinal upsets. These are encountered more frequently in private practice than in hospital practice, especially during an epidemic, when parents are apprehensive about any abnormal symptoms that their children may manifest. Infections of the upper respiratory tract and intestinal upsets occur at times when poliomyelitis is not prevalent, and it is well to remember that even during an epidemic not all minor illnesses are necessarily poliomyelitis.

Careful observers studying this problem have given conflicting opinions. Paul, Salinger and Trask [6] give circumstantial evidence with some experimental support to the relation of characteristic minor illnesses to poliomyelitis. They consider characteristic minor illnesses those in which there is an acute febrile episode with sore throat, headache and vomiting, which lasts from twenty-four to thirty-six hours, as a rule leaving the patient feeling below par for several days. Three separate counties in which poliomyelitis occurred were closely observed for the occurrence of minor illnesses. In all three the ratio of cases of poliomyelitis to minor illnesses was approximately the same; namely, 1:6. Among 450 children from families in which a case of poliomyelitis occurred the incidence of minor illnesses was about 24 per cent, whereas among 266 children from families free of poliomyelitis the incidence of minor illnesses was only about 7 per cent. Washings from the nasopharynx of twelve children with characteristic minor illnesses were tested for the presence of virus by intracerebral inoculation of monkeys. The presence of virus was demonstrated in two children from whom the washings were taken within forty-eight hours of the onset of their illness.

On the other hand, Kramer reports the following:

> A recent survey in a small town in which five cases of poliomyelitis occurred revealed thirty-three cases of mild illness in children with such symptoms as headache, fever and vomiting without apparent cause. In proximity to frank cases these illnesses could have been abortive poliomyelitis. Tests for a neutralizing substance were made on these children several months after the illness, and it was found that the number who were immune was no greater than in a group of children of the same age in the same town who had had no illness. A like number of children of the same ages from an adjacent town which had been free from poliomyelitis showed the same proportion of immunity. These results indicate that the children who were ill did not suffer from poliomyelitis, or in any event that the infection did not confer immunity to the disease.

Studies of the immune reaction of two other groups of contacts showed that immunity results only when there has been intimate contact with the patient. Moreover, immunity may follow exposure to the virus without evidence of any disease.

Such conflicting opinions leave the clinician in a quandary. The only suggestions that we can give from our experience with the first stage of the disease are of a negative nature. We have not observed poliomyelitis begin with severe persistent diarrhea, purulent otitis media, follicular tonsillitis or diffuse tonsillitis with membrane formation, such as is seen in streptococcic infections.

When poliomyelitis progresses beyond the first stage, the infectious process localizes in the central nervous system and causes signs of meningeal irritation. There are many conditions in childhood unrelated to disease of the nervous system which may be associated with symptoms of meningeal irritation. A careful history and physical examination is of great importance. A stiff neck associated with an inflamed middle ear, pneumonia, severe pharyngitis, tonsillitis or persistent diarrhea is probably not due to poliomyelitis. Retropharyngeal abscess or myositis of the neck muscles may cause nuchal resistance. The diagnosis of the various types of meningitis can at times be made only by lumbar puncture. In patients with meningococcic meningitis it is of especial importance to make the correct diagnosis early. The spinal fluid during the second stage of poliomyelitis usually shows some abnormalities, but it may be normal. Among several thousand lumbar punctures over a period of years we have occasionally encountered turbid fluid in poliomyelitis. One patient had 1,500 cells, but the majority have less than 300 cells. The polymorphonuclear percentage is occasionally high. The sugar content is usually normal, rarely low and never absent. In our laboratories no organisms have been found in cultures from the spinal fluid of patients with poliomyelitis. Spinal fluids from some cases of tuberculous meningitis and of syphilis of the central nervous system simulate those from poliomyelitis. Colloidal gold tests, serologic and bacteriologic examinations, and the Mantoux skin test will help clarify the situation. Other stigmas of congenital syphilis may be present. An additional helpful point is that the onset in tuberculosis or syphilis of the central nervous system is less acute than in poliomyelitis.

Further advance of the infectious process in poliomyelitis produces signs of paralysis or encephalitis. Paralysis may be simulated by abnormal conditions in the muscles, bones or joints. This occurred in eleven of our patients. Age is an important factor in making the diagnosis of poliomyelitis in the paralytic stage. Cerebral hemorrhage and arteriosclerosis are not uncommon in persons over 50 years of age, whereas poliomyelitis is rare in that period of life. One unusual case cited in the text was that of a cerebral hemorrhage in a girl, aged 16 years. In infants, scurvy and syphilitic pseudoparalysis may simulate poliomyelitis. In scurvy, muscle tenderness is greater, and the thigh, which is the part most frequently involved, is held in flexion. Hemorrhage into the gums or muscles and lowered resistance of the capillaries of the skin [7] aid in the diagnosis. In syphilitic pseudoparalysis there may be swelling over the affected epiphysis and crepitus may be elicited. There is usually marked tenderness on

7. Dalldorf, Gilbert: A Sensitive Test for Subclinical Scurvy in Man, Am. J. Dis. Child. **46**: 794 (Oct.) 1933.

passive motion. Examination for other stigmas of syphilis, as well as a history and a Wassermann reaction, is of obvious importance.

The cell count of the spinal fluid in poliomyelitis is usually increased if the paralysis is seen early. On a few occasions we have encountered a cell count within normal limits. When lumbar puncture is done after the paralysis has been present for some time, the spinal fluid is frequently normal. Usually the changes in the spinal fluid during the first days of paralysis are similar to those which occur during the period of meningeal irritation (second stage), already described.

Several patients with pneumonia were sent to the hospital with the diagnosis of respiratory failure due to poliomyelitis. The respiratory difficulty in pneumonia is expiratory; in poliomyelitis it is inspiratory. There is almost always paralysis of other muscles in addition to the respiratory muscles in patients with poliomyelitis. Cough does not occur in poliomyelitis, except possibly from irritation of retropharyngeal saliva in those patients who cannot swallow. Physical signs are present when a patient has marked respiratory difficulty due to pneumonia. Only occasionally does pneumonia complicate the respiratory paralysis early in its course. Among forty-five patients treated in the respirators at the Willard Parker Hospital in 1931, one had signs of pneumonia two days after the respiratory difficulty began.[8]

SUMMARY

There were 1,123 patients admitted to the Willard Parker Hospital in 1931 with the diagnosis of poliomyelitis. Among these there were 113 who did not have poliomyelitis but in whom thirty-six other conditions were diagnosed after clinical study and laboratory investigation in the hospital. There were twenty-eight patients with ten different conditions who supposedly had poliomyelitis in the first stage; fifty patients with twenty different conditions simulating poliomyelitis in the second stage, and thirty-five patients with twenty-one different conditions simulating poliomyelitis in the third stage.

The majority of these patients should have had a correct diagnosis made by their personal physician, even though the diagnostic difficulties are greater in the home than in the hospital. The family physician sees many patients in the first stage of the disease, at a time when he is unable, with certainty, to establish the diagnosis of poliomyelitis. However, in many instances it is possible to find some other condition to account for the patient's symptoms. There is a tendency, especially during epidemic periods, to make the diagnosis of poliomyelitis without obtaining a history and making a careful physical examination. As the disease progresses into the second or third stage there are more tangible symptoms on which to make a positive diagnosis of poliomyelitis. Parallel with the increase in the number of symptoms there is an increase in the number of conditions mistaken for poliomyelitis.

Nothing is more important than a careful history and physical examination. If, in addition, poliomyelitis is considered as occurring in three stages, the differential diagnosis will be simpler and the percentage of incorrect diagnoses will decrease. To this end, the experience and information from our series of hospitalized patients is presented.

531 East Lincoln Avenue — Foot of East Sixteenth Street.

8. Brahdy, M. B., and Lenarsky, Maurice: Treatment of Respiratory Failure in Acute Epidemic Poliomyelitis, Am. J. Dis. Child. **46**: 705 (Oct.) 1933.

TREATMENT OF ACUTE PULMONARY ABSCESS

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This discussion will have to do with single (including multilocular) abscesses and does not include those due to tuberculosis, bronchiectasis and new growths. The subject has been frequently discussed in medical literature, but in my opinion the difference in treatment to be directed to the acute in contradistinction to the chronic process has not been sufficiently stressed. The importance of postural drainage in the treatment of the acute condition has received little more than casual mention.

Although the treatment of acute lung abscess is relatively simple, it is apparently unfamiliar to the very class of physicians who should be able to apply it early and to carry it to a successful conclusion in more than 50 per cent of the cases; i. e., the general practitioner. Many patients with chronic pulmonary abscess who are seen have never received any treatment during the acute stage other than rest in bed, "cough medicine," and perhaps forced feeding of milk and eggs, following the procedure in vogue for pulmonary tuberculosis years ago.

GENERAL CONSIDERATIONS

In this paper, in order to emphasize the purely "medical" treatment, bronchoscopy will be considered as surgical treatment, also, artificial pneumothorax, will be classed as surgical along with phrenicectomy, incision and drainage, thoracoplasty and lobectomy.

The treatment of all acute cases of pulmonary abscess is medical until it becomes evident that such treatment will not succeed. The period to be covered by the medical treatment varies from six to twelve weeks in the opinion of different writers, but in general it may be said that the time element alone is not the important factor. The location of the abscess and especially the development of a heavy, more or less rigid, cavity wall, which will not permit of the closure of the cavity through the natural elasticity of the pulmonary parenchyma, are better guides as to when surgical intervention may be indicated. On the other hand, continuous, perhaps rapid, extension of the area of suppurative pneumonitis surrounding the abscess cavity, with concomitant enlargement of the cavity and possibly the appearance of other cavities in the contiguous pneumonic area, indicates the failure of medical treatment alone.

The general condition of the patient and his willingness to cooperate must also be given consideration in selecting the time for surgical intervention.

If continuous improvement takes place, as evidenced by gradual lowering of the temperature to normal, decrease in the amount and offensiveness of the sputum, decrease in the white blood count, improvement in the appetite and the general condition, less cough, with a cleaning up of the involved area as shown by roentgenograms and physical examination, the probabilities of healing by medical treatment alone are good. However, even if the improvement is not steady, medical treatment should be continued for a reasonable period [1] if there is not a definitely downward trend. The site of the abscess cavity must also receive consideration

From the Medical Service, Walter Reed General Hospital.

1. Marietta, S. U.: Abscess of the Lung, Am. Rev. Tuberc. **14**: 107 134 (Aug.) 1926.

because, as Fischel [2] has noted, collapsibility increases with the distance from the pleura. A cavity that is some distance from the pleura can be collapsed, provided the walls are not already fibrosed and thickened too much, because it is surrounded on all sides by elastic pulmonary parenchyma. When the cavity is so near to the overlying pleura that the visceral and parietal layers have become adherent, elimination of the cavity by contraction becomes difficult and perhaps impossible. Such cases may be decided, while still in the acute stage, to be proper ones for incision and drainage (figs. 2, 3 and 4).

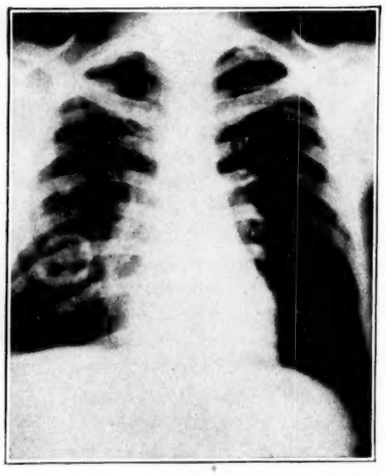

Fig. 1.—Single, chronic abscess, right lower lobe. Thick, fibrous, rigid cavity wall and absence of contiguous pneumonitis. There was little or no cough and scanty expectoration. The temperature and white blood count were normal and there were few physical manifestations.

In general, avoidance of surgery if possible is indicated. With such surgical procedures as incision and drainage, or thoracoplasty, there is always a certain amount of deformity and with the former a variable amount of scar tissue, which may encourage the later development of bronchiectasis; also, Cherry [3] considers as further drawbacks the possibility of hemorrhage and failure to eradicate the abscess, as well as amyloid changes in the important organs, which may occur with a protracted recovery. Unfortunately, a number of surgeons hold with Connors [4] the view that few abscesses are cured by medical means, even with the assistance of the bronchoscope. This attitude on the part of surgical consultants is productive of unnecessary surgical procedures with results inferior in many cases to those which should be obtained by proper medical treatment. It is doubtful even whether the course of the disease is shortened greatly by surgical procedure, as a considerable period of convalescence is necessary following either medical or surgical treatment to prevent recurrence of the abscess.

ETIOLOGIC FACTORS

The etiologic factors in pulmonary abscess have directly to do at times with the form of treatment to be undertaken. Smith [5] states that 90 per cent of the cases of pulmonary abscess in adults are caused by the fusospirochetal organisms (fusiform bacilli, spirochetes, vibrios and cocci) which are commonly found in pyorrhea and Vincent's angina. He says that laboratory studies support clinical observation to the effect that the diseased mouth is a source of infection. Early treatment with arsenical preparations will, he finds, control this type of lesion, often in the initial stage of pneumonitis. That aspiration from a foul mouth may be a prolific cause of lung abscess seems plausible, but I do not believe that this type of organism is generally found in so high a proportion of cases. I always have the sputum of patients examined for spirochetes but have found only a small proportion positive. The sputum, however, was collected in a sterile petri dish and was that produced from the lung after coughing, the mouth having been thoroughly washed out previously.

Harrington,[6] Clerf [7] and Frank [8] mention as important etiologic factors streptococcic bronchopneumonia (rarely pneumococcic pneumonia), aspiration of a foreign body or of septic material from operative procedures on the upper respiratory tract, and septic emboli following any operative procedure. Frank's discussion of the question as to whether postoperative lung abscess results from embolism due to the dislodgment of an infected thrombus from vessels in the operative area rather than from aspiration of infected material indicates that writers in general favor aspiration instead of embolism, four to one.

SYMPTOMS

The symptoms of pulmonary abscess are not diagnostic early. The generally acute onset, the largely unproductive cough, perhaps dyspnea, elevation of temperature, pain in the chest if there is pleural involvement, sweating, chills or chilly sensations and polymorphonuclear leukocytosis might be due to any one of several pathologic processes, such as lobar or lobular pneumonia, or pneumonitis around an old bronchiectatic area. The onset may be more gradual with general malaise, moderate fever, unproductive cough and a gradually increasing leukocyte count. The physical signs at this stage are not diagnostic and roentgenograms, though they show the location of the pathologic changes, contain nothing distinctive or characteristic of abscess. The characteristic sign of a fully developed abscess is the sudden expectoration of a large amount of more or less offensive pus. Later the sputum is offensive, largely in proportion to the amount of gangrene, which in turn depends on the type of infection present. The separation of the sputum in three layers, mentioned in many textbooks as distinctive of bronchiectasis, is of little or no value. The amount of expectoration, except at the time of rupture of the abscess into a bronchus, is not a positive indication of the size of the abscess or of the degree of drainage. Fever is present in the acute abscess but often absent in the old chronic case

Fig. 2.—Single, acute abscess of the left upper lobe, large and very superficial, with visceral and parietal pleural layers adherent, causing "fixation" of large area of cavity wall.

2. Fischel, Karl: The Surgical Treatment of Tuberculous Cavities, Am. Rev. Tuberc. **28:** 411-428 (Oct.) 1933.
3. Cherry, H. H.: The Rest Treatment of Nontuberculous Pulmonary Abscess, Am. Rev. Tuberc. **25:** 634-639 (May) 1932.
4. Connors, J. F.: The Treatment of Lung Abscess and Empyema by Packing, Ann. Surg. **94:** 38-54 (July) 1931.
5. Smith, D. T.: Diagnosis and Medical Treatment of Incipient Pulmonary Abscess, South. M. & S. J. **94:** 149-151 (March) 1932.
6. Harrington, S. W.: The Surgical Treatment of Bronchiectasis and Lung Abscess, Am. Rev. Tuberc. **24:** 612-625 (Dec.) 1931.
7. Clerf, L. H.: The Bronchoscopic Treatment of Bronchiectasis and Lung Abscess, Am. Rev. Tuberc. **24:** 605-611 (Dec.) 1931.
8. Frank, L. W.: Pulmonary Abscess, Ann. Surg. **95:** 675-682 (May) 1932.

with good drainage; however, the height and persistence of the temperature is in direct relation to the freedom of the drainage. Chills and sweats are more common when gangrene is present.

DIAGNOSIS

The diagnosis is one of elimination. A history of any of the etiologic factors mentioned is of great importance. Physical examinations and roentgenograms are of great assistance. The clinical course of the case is of the most value and later, with the development of cavitation, the roentgenogram is practically diagnostic, although thickened pleura or a marked pneumonic reaction about an abscess may vitiate the information to be obtained in this way. The plates should be stereoscopic, and both anteroposterior and lateral views should be taken to localize the process definitely. The injection of iodized poppy-seed oil for the localization of the abscess cavity may at times be necessary, but I have found it so only exceptionally. The use of the bronchoscope as a means of diagnosis is a matter of opinion. Such formerly recommended procedures as exploratory chest punctures need be mentioned only to be condemned.

Fig. 3.—Same case as in figure 2, eleven days later. Cavity enlarging rapidly in spite of good drainage by posture.

The differential diagnosis must take into consideration bronchiectasis, gangrene, encysted empyema, pulmonary tuberculosis and pneumonia.

PROGNOSIS

The prognosis of pulmonary abscess depends on its etiology, its location, the length of time the patient can afford to give to treatment, the period during which he can give proper care to himself after treatment is completed, and the general condition of the patient and the occurrence and type of complications. At times postural drainage or bronchoscopy or both have to be discontinued because of hemoptysis.

Harrington [6] believes that more than 50 per cent of cases respond to conservative measures. Clerf [7] reports fifty-eight cases, twenty-four of which were treated by bronchoscopy; of the twenty-four patients 79 per cent were discharged as well. Miller [9] quotes Lord as estimating the mortality of medically treated abscesses as 75 per cent, but he himself agrees with Glowacki that 50 per cent of the patients will recover under rest, posture and bronchoscopy. Tewksbury reported a 60 per cent mortality and Greer 30 per cent in cases in which only medical treatment was given. Whitemore has considered from 10 to 30 per cent of cases curable by expectant treatment if it is instituted early. It has been stated that the percentage of recovery under medical treatment is greater in upper lobe cases. None of the writers mentioned have made any mention as to whether their cases were of the acute or the chronic variety.

The mortality rate given by different authors, therefore, varies widely for medically treated cases. This would indicate that the method of carrying out the treatment must be at somewhat equal variance, although the number of cases reported, as well as their individual differences, would account for some of the discrepancy. However, as the best treatment consistently applied should approximate the best results, the treatment in some instances would seem to have been substandard.

ACUTE VERSUS CHRONIC ABSCESS

Before treatment is considered in detail, it is advisable to specify what is meant by acute and by chronic lung abscess. Acute abscess may be defined as an area of destructive pneumonitis or necrosis without definite walling off or fibrosed limitation and surrounded by a more or less extensive acute pneumonitis, these being the sequelae of any of the etiologic factors mentioned previously, the process not being due to tuberculosis, new growth and, for the purpose of this discussion, bronchiectasis.

There has always been a clinical differentiation between those areas of pneumonitis which may or may not be the precursors of a lung abscess and the actually developed abscesses in which there is breaking down of lung tissue within an area of preexisting pneumonitis. This may not be of any special significance; however, it is evident that the results in the treatment of a pneumonitis, which goes on to resolution without breaking down, and actual formation of an abscess will yield a considerably higher percentage of cures or recoveries than the latter. When an abscess wall develops and the surrounding pathologic process assumes a stationary and dense appearance on the roentgenogram, indicating the presence of considerable fibrosis, and the patient's symptoms subside, the chronic stage has been reached (fig. 1).[3]

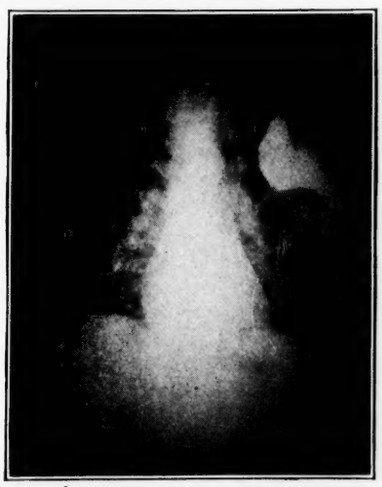

Fig. 4.—Appearance eighteen days after figure 3. Incision and drainage with packing with excellent result.

TREATMENT OF ABSCESS

In chronic abscess medical treatment is of use for only a relatively short period to improve the general condition of the patient before proceeding to the selected surgical procedure. In other words, the elimination of a chronic lung abscess by medical treatment alone is not to be expected, as the inelastic fibrous wall present in this condition will not permit closure of the cavity, although it may be kept empty by postural drainage and the general condition of the patient may be improved thereby. Medical treatment for a period before surgery will often clear up an area of suppurative pneumonitis contiguous to the cavity, thereby tending to lower postoperative mortality. Medical

9. Miller, John: A Review of One Hundred Cases of Abscess of the Lung, Ann. Otol. Rhin. & Laryng. **40**: 1198-1211 (Dec.) 1931.

treatment postoperatively, especially following such procedures as artificial pneumothorax, phrenicectomy or thoracoplasty, will often expedite and render more probable a satisfactory result.

The medical treatment of an acute abscess has been mentioned in more or less detail by various writers.[10] At the first suspicion of an abscess the patient should be placed at rest in bed and should remain there until the temperature has been normal for one month. During the early stage, i. e., prior to the rupture of the abscess into a bronchus, treatment should be that of an acute respiratory infection and be expectant through the more or less long drawn out period which the patient will pass through subsequent to rupture of the abscess. Free fluid intake should be insisted on; he should be given a high calory and high vitamin diet, and proper elimination should be provided. He should not be allowed to lose an undue amount of rest at night because of a harassing cough. There is very little expectoration prior to rupture, and sedatives should be used cautiously, as it is not desirable to destroy the cough reflex.

In all but a small number of cases the abscess will rupture into a bronchus in from a few days to two weeks, and drainage is established. In a case in which rupture does not take place and destruction of lung tissue is progressive, some surgical procedure will be indicated. As soon as the abscess ruptures, there will be a considerable amount of foul pus coughed up. As soon as possible a smear and culture should be made of the sputum to determine the types of the prevalent organisms, and especially the presence of spirochetes, and postural drainage should be started at once; if spirochetes are present, two or three small doses (0.3 Gm.) of arsphenamine should be given.

By postural drainage is meant the mechanical emptying of the abscess area as far as possible by placing the patient in such positions as will best bring this about. In lung abscess as in any localized suppurative process the primary desideratum is drainage, and the progress toward improvement, recovery or cure will depend on the degree of drainage. The frequency with which the postural drainage is done and the length of time spent on each drainage will depend on such factors as the size of the bronchus draining the abscess area, the viscosity of the sputum, the tendency toward hemorrhage and the general condition of the patient. The drainage itself is performed by first placing the patient for five or ten minutes on the healthy side; this is to permit the purulent material to drain down into the larger bronchi so that the next step, the inversion of the patient, will be more productive of further drainage. If the abscess is in an upper lobe, it is well to have the patient sit erect for five or ten minutes before taking the position of lying on the healthy side. The inversion of the patient is best performed by having the patient lie across the bed, face down, with the groins at the edge of the bed, so that, as the body is bent at the hips, the head is at or near the floor, with the body vertical. The weight may be partially supported by the hands at the sides of the head, and further assistance is given by having an attendant hold the thighs as they lie across the bed. A pus basin is placed on the floor by the head for the collection of the sputum. The inverted position should be held for at least three to five minutes, and if the drainage is slow or is better promoted by a longer period it should last for ten minutes. Most patients do not find this too difficult after they become somewhat accustomed to it. Ordinarily this procedure of drainage, including the lying on the healthy side and the inversion, should be done four times in the twenty-four hours, one-half hour before each meal and at bedtime. However, if the abscess area is not clearing up satisfactorily, the drainage can be done more frequently. When progress is slow it is perhaps better to drain more frequently and for shorter periods, say at two and one-half hour intervals six times a day. It is to be borne in mind that the patient and not the disease is the first consideration as to the frequency and duration of postural drainage. Further, it is not to be expected that the purulent sputum will all drain out of the patient during the period in which he is inverted, as if he were a bottle. The purulent material, however, will be carried down into the bronchi by the drainage, so that the cough reflex later will bring about its removal, and it is in the period following the drainage that the patient raises most of the sputum; hence the necessity for not giving sedatives to the extent of destroying the cough reflex in the treatment of lung abscess.

The Jacksons[10] emphasize the importance of the "tussive squeeze" in natural peroral drainage and emphasize the deleterious action of codeine on a patient trying to cough up pus. They state that the cough reflex is the "watch dog of the lungs" and that the indiscriminate giving of sedatives to lessen the cough reflex is logically unsound and clinically pernicious, opium derivatives being especially bad in that they not only check the cough but thicken the pus by checking the normal secretions that should thin it; this is of great importance, because the tendency too often is to give opiates of some variety to "keep down the cough."

Failure in the postural method of treatment generally occurs as the result of the patient not being placed in the position best calculated to assist drainage, and not using it frequently enough or for long enough periods. This drainage is not a matter that can be left to the patient; it must be supervised and the patient encouraged in its use.

Several appliances, especially various tables of the swivel type, have been advocated for use in bringing about this drainage. None of them, in my opinion, have any advantage over the use of the patient's bed, except the financial advantage derived by the manufacturer. Most of them do not permit placing the patient in the completely inverted position, which is desirable as the terminal part of the procedure. Furthermore, they require the patient to be moved to them, sometimes for a considerable distance, and make an annoying and time-consuming matter out of what should be a perfectly simple procedure.

When the sputum is viscid and difficulty is experienced in getting drainage, the judicious administration of expectorant cough mixtures such as potassium iodide or ammonium chloride will be of assistance. Bronchoscopy is particularly indicated if drainage is still obstructed by thick inspissated secretion, granulation tissue, inflammatory exudate, or massive necrotic tissue blocking the draining bronchus. Clerf[7] feels that

10. Marietta.[1] Smith.[5] Harrington.[6] Clerf.[7] Yates, J. L.: Pulmonary Abscess, Arch. Surg. **25**: 257-272 (Aug.) 1932. Pinchin, A. J. S., and Morlock, H. V.: The Treatment of Pulmonary Suppuration, Practitioner **127**: 335-348 (Sept.) 1931. Young, R. A.: The Diagnosis and Treatment of Abscess of the Lung, Clin. J. **61**: 409-412 (Aug. 31) 1932. Bailey, R. B.: Nontuberculous Lung Infection, West Virginia M. J. **12**: 552-559 (Dec.) 1931. Jump, H. D., and Baumann, Frieda: Treatment of Lung Abscess, M. Clin. North America **15**: 297-308 (Sept.) 1931. Jackson, Chevalier, and Jackson, C. L. Peroral Pulmonary Drainage: Natural and Therapeutic, with Especial Reference to the "Tussive Squeeze," Am. J. M. Sc. **186**: 849-854 (Dec.) 1933.

bronchoscopy shortens the course of the disease in those patients who would have gotten well without it.

For short periods when the sputum is foul and offensive to the patient I have used small doses of creosote with benefit. Frequent cleansing of the mouth with pungent mouth washes also is comforting to the patient.

Postural drainage must be persisted in, even if at times there seems to be little in the way of results at the time of drainage, and, even after the abscess area has largely cleared up as shown by physical and roentgen examinations, drainage should be continued in order to prevent the accumulation of secretions and a recurrence of the abscess. I keep patients in bed for one month after the temperature is normal and take another month in getting them up, with another month of convalescence, during all of which postural drainage is continued, although not as strenuously as during the acute stage.

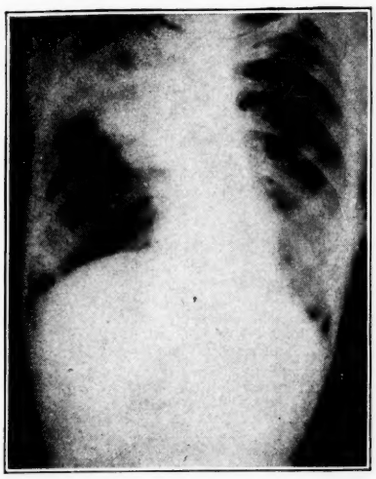

Fig. 5.—Single, acute abscess, right upper lobe. (In this woman, the breasts, hanging low, give a false impression of a pneumonitis at each base.) At the time this plate was taken she had been under treatment for two months but had not had postural drainage.

It has seemed to me that the sine qua non in treatment is drainage. Emetine (Pinchin and Morlock [10]) has been recommended but I have used it only in one case in which the abscess was the result of extension from an amebic abscess of the liver. The statement has been made (Young [10]) that the percentage of recovery is greater in cases of upper lobe abscess. This is possibly true, but postural drainage is still required, as evidenced by a case shown in figures 5 and 6. The treatment of the foreign body abscess is, of course, bronchoscopic, with removal of the foreign body, following which postural drainage will generally clear up the abscess without difficulty. Although I have classified artificial pneumothorax here as a surgical procedure in order to define more sharply the results that may be obtained by medical treatment alone, I have always carried out artificial pneumothorax in the medical service. Artificial pneumothorax is indicated only in centrally located abscesses when there are no pleural adhesions and the abscesses are favorably situated for drainage through a bronchus. Only a small percentage of cases are suitable for this procedure, which is contraindicated in the peripheral abscess because of adhesions which prevent collapse or, by pulling on the abscess wall, cause tearing, with rupture of the abscess into the pleural cavity and resulting empyema, a most serious and frequently fatal complication. Jump and Baumann [10] feel that artificial pneumothorax is actually contraindicated, as drainage, and not rest and collapse of the lung, is desired.

Fischel [2] feels that pneumothorax generally results in a useless collapse because the compression affects the healthy portions of the lung, the cavities remaining patent. This would hardly apply as an objection in the case of acute abscess in which there is no resistant cavity wall.

Removal of marked foci of infection about the mouth, such as pus pockets about the teeth or draining alveolar abscesses, as well as the cleaning of insanitary teeth, is a part of the treatment as well as a prophylaxis of lung abscess and should be attended to as soon as the patient is seen, unless his physical condition is such as definitely to contraindicate it.

Vaccines, stock or autogenous, are of no benefit in the treatment of acute cases and probably have little promise in chronic cases.

REPORT OF FIFTY CASES

The opinions expressed on the treatment of acute pulmonary abscess are emphasized by the experience gained in a series of fifty consecutive cases seen by me in the past ten years. During this period the acute cases have approximated 50 per cent of the abscess cases seen, perhaps a little less, but no complete records were kept of the chronic cases. Only completed cases are considered, those remaining in the hospital not being included.

The ages of the patients varied from 19 to 61 years.

The location of the abscesses was as follows: right upper lobe, thirteen (26 per cent); right lower lobe, fifteen (30 per cent); right middle lobe, two (4 per cent); left upper lobe, six (12 per cent); left lower lobe, fourteen (28 per cent). Forty-six of the cases, or 92 per cent, were single abscesses and four, or 8 per cent, were multilocular.

The etiologic factors were: pneumonia (based on the history with the type undetermined) seventeen (34 per cent) (only two of these cases occurred following pneumonia in my own wards); following extraction of teeth (local anesthetic), two (4 per cent); following tonsillectomy (local anesthetic), one (2 per cent); extension of amebic liver abscess, one; following operation on the mandible, one; following grip, one; chest trauma and aspiration of fluid (automobile accident in which the car turned over and the patient was held under water for a few moments), one; peritonsillar abscess with rupture and aspiration of purulent material, one; foreign body (dental bridge—two tooth), one; undetermined (but many with foul dental conditions), twenty-four (48 per cent).

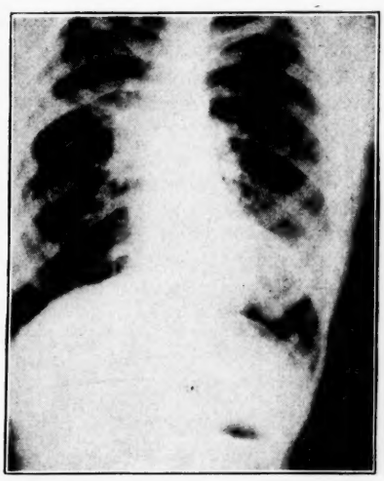

Fig. 6.—Same case as in figure 5. Appearance fifteen days after the beginning of postural drainage. This illustrates the necessity for postural drainage even in upper lobe abscesses and shows its efficacy.

The types of organism found were as follows: streptococci, seven (14 per cent); pneumococci, six (12 per cent); mixed streptococci and staphylococci, twenty (40 per cent); undetermined, seventeen (34 per cent).

Surgical treatment was required in the following cases: bronchoscopy (one an aspirated dental bridge), three (6 per cent); artificial pneumothorax, six (12

per cent); phrenicectomy (one case crushing only), two (4 per cent); incision and drainage, six (12 per cent); thoracoplasty, two (4 per cent).

The complications noted were: purulent pericarditis, one (2 per cent); spontaneous pneumothorax (following artificial pneumothorax), one; empyema with bronchopulmonary fistula, one; closed empyema, two (4 per cent); brain abscess, one; aspiration bronchopneumonia, one.

The sequelae were bronchiectasis, four (8 per cent).

The results of treatment were: cured, twenty-eight (56 per cent); improved, eleven (22 per cent); died, ten (20 per cent); unimproved, one (2 per cent).

In this connection, attention is invited to a preceding paragraph giving the various results of treatment by other writers.

Detailed results of treatment other than medical are given in table 1. Some of these patients had more than one surgical procedure. Table 1 embraces five fatal cases.

By "cured" is meant those patients with no remaining clinical or gross roentgen evidence of pulmonary pathologic changes. By "improved" is meant those patients leaving the hospital against advice before their conditions were entirely cleared up clinically or roentgenographically (a small proportion) and those who, remaining in the hospital to complete the period of treatment, had recovered clinically but whose roentgenograms showed some residual pathologic condition in the nature of fibrosis or bronchiectasis. Generally, these cases may be considered as having obtained a satisfactory result with much less scarring and loss of function of the pulmonary tissue than would result from incision and drainage.

The number of cases completed by medical treatment alone was thirty-four, or 68 per cent of the total number. Of these patients, twenty, or 40 per cent, were cured and nine, or 18 per cent, were improved. Five, or 10 per cent, died, two of them having refused surgery. Of the multilocular cases, one was cured and three were improved. Of these three patients, two left the hospital against medical advice markedly improved and might well have gone on to a cure.

The causes of death in the ten cases are given in table 2. It would seem that the third fatal case, which occurred three days after admission, should hardly be charged against the hospital mortality.

TABLE 1.—*Results of Treatment Other Than Medical*

	Cured	Improved	Unimproved	Died
Incision and drainage.....	3	0	0	3
Artificial pneumothorax...	0	2	1	3
Bronchoscopy.....	2	0	0	1
Thoracoplasty.....	1	0	0	1
Phrenicectomy.....	2	0	0	0

Eight cases required adjunct measures to medical treatment to bring about cure and two cases to bring about improvement.

This gives a 20 per cent mortality or, deducting the case in which death occurred three days after admission, 18 per cent mortality. Of these, five patients died following surgical procedures (possibly initiated too late) which were necessary because of failure of medical treatment.

COMMENT

The treatment given in the cases cited was evidently not always the best advised. However, it is apparent that medical treatment, with no recourse to adjunct treatment, furnishes a method that can be satisfactorily used by the general practitioner at little expense to the patient and in his home. If surgical procedures are indicated later, the patient should not be too ill to be moved to a hospital if decision is made at the proper time.

The results of treatment in this series should have been better, but considering the more or less changing personnel, not always alive to the importance of detail in treatment, and an occasional uncooperative patient, they seem fairly satisfactory.

TABLE 2.—*Causes of Death in Ten Cases*

Condition	No. of Cases
Empyema following medical treatment, followed by incision and drainage of empyema and of the pulmonary abscess	1
Spontaneous pneumothorax following artificial pneumothorax, followed by pyopneumothorax, incision and drainage	1
Suppurative pericarditis and nephritis following medical treatment (died 3 days after admission to hospital)...	1
Suppurative pneumonitis with extension and secondary multiple cavitation following general medical treatment	2
Multiple metastatic brain abscess following medical treatment	1
Medical treatment, followed by an ill advised artificial pneumothorax, empyema, aspiration, closed drainage, open drainage, thoracoplasty, pneumotomy and septicemia	1
Artificial pneumothorax, also ill advised, with blocking of drainage and extension of the suppurative pneumonitis	1
Artificial pneumothorax, which was unsuccessful on account of adhesions, bronchoscopy, septic bronchopneumonia, with refusal of surgery when advisable...	1
Following failure of medical treatment, surgery refused, with empyema, bronchopulmonary fistula, and septicemia	1

There should have been more caution employed in the use of artificial pneumothorax and more use made of bronchoscopic drainage. Some of the cases that were sent on to operation might have cleared up without it with a greater use of the bronchoscope. It is perhaps best not to speak of "cure" in abscess cases, especially when the case is not followed long enough to determine whether a recurrence may take place, but it seems necessary to use some term more forceful than "improved" to describe certain cases.

Pneumonia is cited by some writers as an infrequent precursor of abscess, but my experience, following careful questioning of patients coming into the hospital with a developed abscess, would indicate that probably a pneumonic process of some nature had been present in approximately one third of the cases.

CONCLUSIONS

1. More than 50 per cent of acute pulmonary abscess cases can be brought to a satisfactory conclusion by medical treatment alone.

2. The essential feature of medical treatment is "postural drainage."

3. The treatment is so simple that it can be carried out at the patient's home by the general practitioner so long as adjunct measures are not required.

4. Bronchoscopic drainage is an important adjunct to the medical treatment of acute lung abscess.

5. The recognition of the limitations of medical treatment and the decision as to when surgery is advisable are important and responsible requirements.

6. An appreciation of the difference between acute and chronic lung abscess is necessary in order to outline and carry out treatment properly.

PSEUDOXANTHOMA ELASTICUM

ASSOCIATED WITH ANGIOID STREAKS OF THE RETINA AND DIABETES MELLITUS IN SISTERS

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Pseudoxanthoma elasticum is about as rare a condition as angioid streaks of the retina, and when the two were reported as occurring in the same patients, renewed interest was awakened among dermatologists and ophthalmologists.

Pseudoxanthoma elasticum must be differentiated from the various forms of xanthoma. The latter, while present elsewhere, invading the natural creases of the skin of the neck as does pseudoxanthoma elasticum, occurs on the face, upper eyelids, palms, soles and elbows, assuming a tuberculous and striated form. Pseudoxanthoma elasticum does not invade these sites.

Microscopically, there is an absence of fatty degeneration and xanthoma cells in pseudoxanthoma elasticum. While xanthomatous tumors have been reported by McGavack and Shepardson[1] as occurring in the presence of normal and even of low blood cholesterol values, hypercholesterolemia is present in an overwhelming majority of cases. The blood cholesterol has not been reported as being frequently elevated in pseudoxanthoma elasticum. Disseminated xanthomatosis, exclusive of xanthoma palpebrarum, is a rare disease. It occurs as a complication, usually with diabetes mellitus, but may occur independently.[1] Xanthoma diabeticorum is also rare. According to the reports of Major[2] and of McGavack and Shephardson,[1] up to 1933 the total number of known cases of diabetic xanthomas was ninety-seven. Diabetes mellitus, while it occurred in the two cases described here, has not been reported as occurring with pseudoxanthoma elasticum sufficiently often to be of any significance.

One point of similarity is that diabetes mellitus and the various forms of xanthomas are known to have a definite hereditary history and, from the reports of pseudoxanthoma elasticum, there seems to be a tendency of it to occur in other members of the same family.

To Darier[3] is given the credit of first describing in 1896 pseudoxanthoma elasticum as a separate clinical entity.

Rigal[4] in 1881 and Balzer[5] in 1884 described this rare skin disorder but considered it a variant of xanthoma in which there was a degeneration of the elastic tissues. The circumscribed patches of small yellowish tumors and cream colored linear markings bore a strong resemblance to xanthoma. Accompanying this was the marked relaxation of the skin; hence the name pseudoxanthoma elasticum, which dermatologists consider today to be a misnomer. Darier[6] employed the term "elastorrhexis of the skin," which is now believed to be much more descriptive of the disease.

One of the most outstanding characteristics of pseudoxanthoma elasticum is the loose, relaxed and wrinkled appearance of the skin of the neck and axillae. In addition are observed multiple cream colored, subepidermal nodules varying in size from a pinhead to a large pea. Many of these are discrete, but the smaller ones appear to have coalesced, producing whitish and yellowish striae of varying widths and lengths. On the neck, these striae are much longer and wider and invade the natural creases of the skin. The eruptions have been observed in the mucous membranes of the mouth and nose in two instances, and also on the back and extremities occasionally. The face, scalp, palms and soles have never been reported as being involved.

Another type of lesion of pseudoxanthoma elasticum is the irregularly shaped blotch of varying size described as occurring on the skin of the chest, shoulders and arms. These plaque-like areas present a reticulated, yellowish, mottled appearance. On first inspection these blotches appear to be elevated, but when the skin is stretched it is found to be smooth, and the areas are really subepidermal. The skin in these areas shows some loss of elasticity, but to a much less extent than the skin of the axillae and neck. There is atrophy of the skin in all these areas.

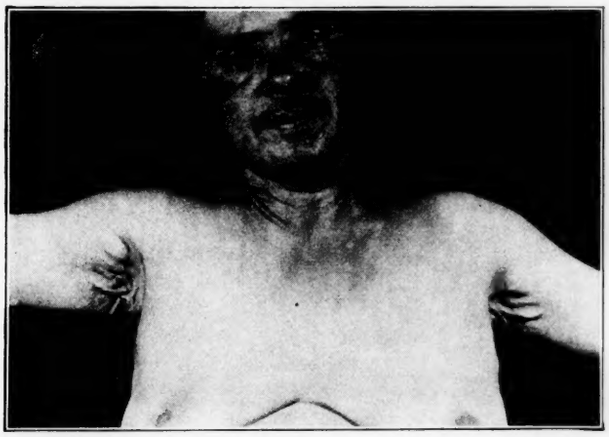

Fig. 1 (case 1).—Puckering of skin in the axillae in a case of pseudoxanthoma elasticum of thirty years' duration.

As the disease progresses, in some cases whitish scar-like markings appear in the abdominal skin which have a striking similarity in appearance to lineae albicantes following pregnancy. From this it can be seen that the lesions are of many types and may appear in widely different areas.

Pathologically, the elastic fibers in the deep portions of the skin appear to undergo an extensive degeneration. The elastic tissues are curled and broken, and they stain darkly.

Macleod states that, microscopically, sections show that the nodule is due to the presence of a mass of swollen and fragmented elastic tissue fibers situated in the reticular part of the corium, which gives the staining reaction, either of healthy elastin or of its degenerated product, elacin. Giant cells, though not always present, have been observed in which the nuclei were not

From the medical and dermatologic departments of the Roosevelt Hospital.

1. McGavack, T. H., and Shephardson, H. C.: Xanthoma Accompanied by Hypercholesterolemia, Occurring in an Otherwise Normal Individual and in an Individual with Acromegaly and Diabetes, Ann. Int. Med. **7**: 582-601 (Nov.) 1933.

2. Major, R. H.: Xanthoma Diabeticorum, Bull. Johns Hopkins Hosp. **35**: 27-32 (Jan.) 1924; M. Clin. North America **7**: 1059-1064 (Jan.) 1924.

3. Darier, Jean: Pseudoxanthoma Elasticum, Monatschr. f. prakt. Dermat. **23**: 609, 1896.

4. Rigal, D.: Observation pour servir a l'histoire de la cheloide diffuse xanthelasmique, Ann. de dermat. et syph. **2**: 491, 1881.

5. Balzer, Félix: Recherches sur les caractères anatomiques du xanthelasma, Arch. de physiol. **4**: 65, 1884.

6. Darier, Jean: Pseudoma Elastique, Tr. Third Internat. Cong. Dermat., London, 1896, p. 289.

arranged in a ring or horseshoe fashion, as the giant cells of tuberculosis, but formed a cluster within a mass of faintly stained protoplasm. The sweat, sebaceous and hair glands are normal.

Until recently, this degeneration of elastic tissue was considered characteristic of pseudoxanthoma elasticum; but Kissmeyer and With [7] and Weidman [8] in their studies of senile skin, old scars and lineae albicantes observed similar elastic tissue degeneration. Weidman, after further study of senile skin, concluded [9] that pseudoxanthoma elasticum was almost identical with some specimens of senile elastosis. Montgomery [10] was of the opinion that, by using Unna's differential stains, the typical case of pseudoxanthoma elasticum could be

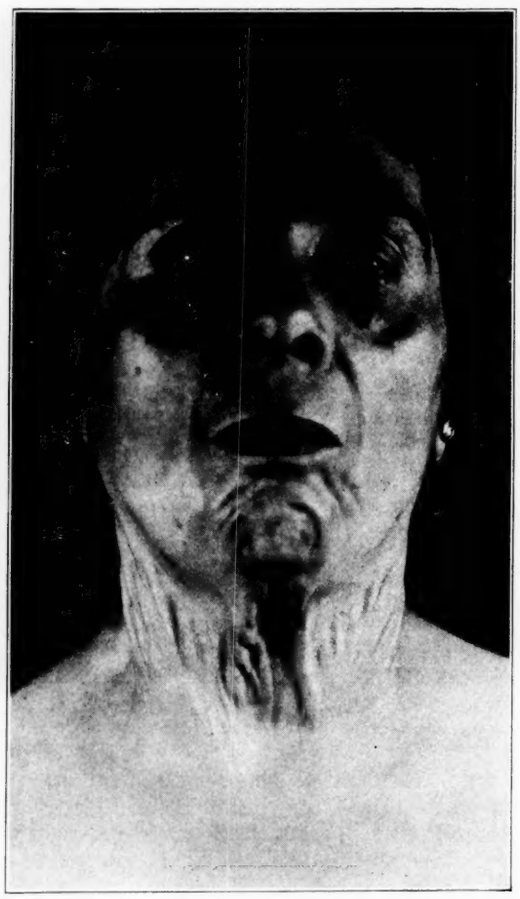

Fig. 2 (case 2).—Front view of neck in case of pseudoxanthoma elasticum, showing relaxation and folding of the skin, with parallel striae.

readily distinguished from senile changes in the skin. Jones, Alden and Bishop,[11] in their report, stated that histologically the two conditions could not be differentiated. Because of this close relationship, these observers were of the opinion that pseudoxanthoma elasticum was an evidence of presenility. From these observations it seems apparent that elastic tissue degeneration is not confined entirely to pseudoxanthoma elasticum.

Angioid streaks of the retina were first described by Pflange [12] in 1892. The same year, Knapp [13] introduced the term "angioid" in describing streaks of the retina which he observed. Doyne [14] in 1889, however, had reported his observations in a case quite similar to this condition, and for this reason his name will always be associated with the early discovery of angioid streaks. On ophthalmoscopic examination, a reddish brown band is noted around the border of the optic disks, from which radiate vessel-like streaks, some of which are curled or corkscrew shaped. These are found in the subretinal area. As the disease is a progressive one there is a constant change in the ocular picture, the color of the streaks varying from time to time from a pale red to red, brown and black. May [15] describes the angioid streaks as "dark brown, pigmented striae, resembling obliterated blood vessels, and probably the sequelae of hemorrhages." Sooner or later there is a disturbance in vision. No complete pathologic examination has been made of the angioid streaks, and the etiology is unknown, although many conflicting theories have been offered.

Since the first report of pseudoxanthoma elasticum by Darier in 1896 and the description of angioid streaks of the retina by Pflange in 1892, very little additional information had been added to the knowledge of the nature of these rare diseases until 1929. In that year Grönblad [16] and Strandberg [17] were the first to report angioid streaks of the retina, occurring in three patients who also had pseudoxanthoma elasticum. Grönblad [18] in 1932 reviewed all the reports of combined pseudoxanthoma elasticum and angioid streaks and was of the opinion that a new disease syndrome had been established in which the elastic tissues underwent degeneration. This degeneration, while it was usually confined to the skin and mucous membranes, was also found to affect the elastic tissues of the eyes and circulatory system. Lewis and Clayton [19] in 1933, in an excellent review of this subject, reported, including their own case, seventeen cases in which both pseudoxanthoma elasticum and angioid streaks were demonstrated in the same patients. These investigators endorsed the opinion expressed by Grönblad and suggested that the term "elastosis atrophicans" be used to designate the syndrome of these combined diseases. They had no explanation of the etiology other than that of a hereditary predisposition. These observers reported improvement of the affected skin of the neck by treatment with roentgen rays but were unable to get a biopsy afterward. Jones, Alden and Bishop [11] in their report did not find the association of angioid streaks and pseudoxanthoma elasticum to be the invariable rule, as they found that either one or the other might occur independently. This was further confirmed by Grönblad,[20] Perkins [21] and other observers. In our opinion, a sufficient number of cases have not been studied to justify fully the estab-

7. Kissmeyer, A., and With, C.: Histological Studies of the Pathological Changes in the Elastic Tissue of the Skin, Brit. J. Dermat. **34:** 175 (June) 1922.
8. Weidman, F. D.: Pathology of the Yellowing Dermatoses, Arch. Dermat. & Syph. **24:** 954 (Dec.) 1931.
9. Weidman, F. D.: Pathology of the Yellowing Dermatoses, Arch. Dermat. & Syph. **24:** 954 (Dec.) 1931.
10. Montgomery, Hamilton, in discussion on Jones, Alden and Bishop,[11] p. 438.
11. Jones, J. W.; Alden, H. S., and Bishop, E. L.: Pseudoxanthoma Elasticum, Arch. Dermat. & Syph. **27:** 424 (March) 1933.
12. Pflange, O.: Pigment Striae with Secondary Changes in the Retina After Hemorrhage, Arch. Ophth. **21:** 282, 1892.
13. Knapp, Hermann: On the Formation of Dark Angioid Streaks as an Unusual Metamorphosis of Retinal Hemorrhage, Arch. Ophth. **27:** 289, 1892.
14. Doyne, R. W.: Choroidal and Retinal Changes, the Result of Blows on the Eyes, Tr. Ophth. Soc. U. Kingdom **9:** 128, 1889.
15. May, C. H.: Manual of the Diseases of the Eye, ed. 9, New York, William Wood & Co., 1917.
16. Grönblad, Ester: Angioid Streaks—Pseudoxanthoma Elasticum, Acta ophth. **7:** 329, 1929.
17. Strandberg, J.: Verhandl. d. dermat. Gesellsch. **13:** 3, 1929.
18. Grönblad, Ester: "Angioid Streaks"—Pseudoxanthoma Elasticum, Acta ophth. (supp. 1) **10:** 1, 1932.
19. Lewis, G. M., and Clayton, M. B.: Pseudoxanthoma Elasticum and Angioid Streaks, Arch. Dermat. & Syph. **28:** 546-556 (Oct.) 1933.
20. Grönblad: Personal communication to Jones, Alden and Bishop.[11]
21. Perkins, O. P.: Personal communication to the authors.

lishment of a new disease syndrome or to throw any light on the etiology. None of these cases have ever been noted to assume any malignant characteristics.

To the seventeen cases already reported of pseudoxanthoma elasticum associated with angioid streaks of the retina in the same patients, we add our two cases occurring in sisters, who also have diabetes mellitus.

REPORT OF CASES

CASE 1.—*History.*—Mrs. A. C., an Italian housewife, aged 41, seen at the diabetic clinic in 1930, first noted blurred vision in her left eye about three months before, which grew gradually worse. On examination at the New York Eye and Ear Infirmary she was found to have diabetes mellitus and was referred to our clinic. There was nothing of importance in the past history except the failure of vision in her left eye and the skin disorder of the neck and axillae, which had been present for twenty years. Although it had given her no symptoms, the involvement of the skin had gradually grown more extensive. During this time she had visited many hospitals and physicians without any beneficial results. She has seven healthy children, and her father, mother and two brothers are all in good health. One sister (patient 2) has a similar skin condition and diabetes mellitus. She has been a very cooperative patient, and the diabetic condition is now properly controlled. The peculiar relaxed and wrinkled condition of the skin of the neck and axillae was noted, and a diagnosis of pseudoxanthoma elasticum was made in the department of dermatology.

A careful physical examination did not reveal any abnormalities except blindness in the left eye, the skin condition and a rather low blood pressure, 100 systolic and 80 diastolic. There was no evidence of any lesions of pseudoxanthoma elasticum in the nose or mouth. The scalp, face, back, legs, palms and soles were free from disease. The throat was normal, and all the teeth were artificial. On examination, the heart, lungs, abdominal viscera and nervous system were found to be normal. Menstruation was normal, and the gynecologic examination was negative. Her present weight of 120 pounds (50.5 Kg.) has been constant for the past three years.

Ophthalmologic Examination.—This was made by Dr. O. P. Perkins, who reported angioid streaks of both retinas. A brownish ring almost surrounded the right disk, from which extended brownish colored branches. In the left eye there was also noted evidence of an old retinitis, which more or less obscured the angioid streaks, but a few definite ones were visible. She could distinguish only darkness from light with the left eye, and the vision in the right was 20/20 uncorrected.

The cutaneous lesions in the two cases will be described together after the report of case 2.

Laboratory Report.—A diet was given to the patient consisting of 140 Gm. of carbohydrate, 60 Gm. of protein and 70 Gm. of fat. Following this the blood sugar did not rise above 150 mg. per hundred cubic centimeters, and the urine rarely showed dextrose. The blood chemistry, which was normal, was: creatinine, 1.2 mg. per hundred cubic centimeters; urea nitrogen, 17.3 mg., and blood sugar, 168 mg. The Wassermann test was negative and the blood count was normal.

CASE 2.—*History.*—Mrs. J. M., an Italian housewife, aged 44, appeared at the diabetic clinic in 1933 at our invitation because we were told by her sister (patient 1) that she had a similar skin disorder of over ten years' duration. There was nothing in her past history of importance, except the skin condition of the neck and armpits. She had had no symptoms, but the lesions had grown more extensive. Many physicians had observed her, but no treatment had been recommended. She has three healthy children living and three dead. A routine blood chemistry examination and a urinary analysis were made and diabetes was discovered. The peculiar appearance of the skin of the neck and axillae was noted to be almost identical with case 1, and a diagnosis was made as before of pseudoxanthoma elasticum. No other physical abnormalities were found except an elevated blood pressure, 160 systolic and 80 diastolic, and a constant systolic murmur at the apex, which was transmitted to the axilla. Her weight of 120 pounds (50.5 Kg.) has been constant for the past few years.

Ophthalmologic Examination.—This was made by Dr. O. P. Perkins. The uncorrected vision of both eyes was 20/20, and external examination showed nothing of importance. A typical fundus picture was noted with angioid streaks of the retina. Both disks were partially surrounded by brown zones and extending outward from these were noted brownish and red striae of varying lengths, some of which branched and all appeared under the retinal vessels.

Laboratory Report.—On admission in July 1933 the blood sugar was found to be 250 mg. per hundred cubic centimeters, and the urine contained 1 per cent sugar. She was given a diet of 150 Gm. of carbohydrate, 60 Gm. of proteins and 75 Gm. of fat. The blood sugar following this was found to be 180 mg. per hundred cubic centimeters, and the urine became sugar free. The blood chemistry, which was normal, was as follows: blood cholesterol, 166.5 mg. per hundred cubic centimeters; urea nitrogen, 19.40 mg., and creatinine, 1.5 mg. The blood count was normal and the Wassermann test was negative.

Fig. 3 (case 2).—Side view of neck.

Cutaneous Examination.—The peculiar folding, wrinkling and relaxed state of the skin of the front and sides of the necks of the two sisters were almost identical. The elasticity was lost to such an extent that the skin could be caught between the fingers and folded, thus producing the effect of being too large for the area which it covered. In both cases the axillary skin was likewise loose, baggy and velvety to the touch. The lesions in case 2 were confined to the neck and axillae. Multiple soft, yellow, subepidermal nodules were noted, which varied in size from a pinhead to a pea and larger. These appeared to be elevations, but on palpation or stretching the skin was found smooth. The color of the nodules varied from a lemon yellow to cream, and on the neck many of those of pea size had coalesced to form larger ones, which were of a more pronounced yellowish hue and distinct in outline. Buff colored linear markings, which apparently had been formed by the coalescence of the minute nodules, had invaded the natural creases of the skin of the neck, producing the effect of streaks or lines. In case 1 the cutaneous condition was not confined to the neck and axillae as in case 2, but areas of involvement were noted on the shoulders, arms, chest, cubital fossae and

abdomen. The loss of elasticity, though present, was far less in these regions than in the neck and folds of the axillae.

A reticulated network of cream colored streaks was noted on the posterior surface of the neck in case 2, where the skin was not smooth, and also a similar irregular area on the left shoulder in case 1, with an indefinite outline, shading off into the natural color of the skin. On stretching, these lesions became more distinct and appeared to be composed of multiple pinhead sized yellow tumors, arranged in a meshlike manner within the skin, producing a mottled appearance. A yellow, plaque-like blotch was present on the chest above the left nipple and also one was observed on the right arm in case 1. Scattered over the cubital fossae and abdomen were found faint yellow scarlike lines and whitish striae, the latter over the abdomen, resembling lineae albicantes. The individual tumors or nodules forming these lines, while much smaller, were similar to the eruptions noted in the neck and axillae. There was no evidence of a lilac hue of the skin described by Darier. In both patients there was a noticeable overgrowth of hair on the face.

HISTOLOGY OF THE CUTANEOUS LESIONS

Specimens of skin were removed from the posterior axillary fold in both cases and studied by Dr. Lawrence Sophian, who reported as follows:

Microscopic examination in case 1 revealed an epidermis of normal appearance as to cell constitution, but the rete pegs were very short. There were no hair follicles or sebaceous glands but the coil glands were normal. The fibrous tissue had the usual collagenous constitution without degeneration or edema. Sections stained for elastic tissue by Weigert and by Verhoeff's stain revealed a small amount of delicate fibrils immediately under the epidermis. There was a rather sharp line of demarcation between the superficial dermis and the deeper two thirds. The latter part had in it small segregated clusters of elastic substance in the form of coarse fibrils and knots. The continuity between the deep and superficial elastic tissue appeared broken. The blood vessels were of normal form. No inflammatory infiltration or giant cells were present.

The epidermis in case 2 was somewhat thinned out and presented very fine wrinkles. There were no rete pegs. The fibrous tissue was of the usual density and the collagen was free of degeneration and edema. Coil glands were present and appeared normal. Section stains for elastic tissue revealed long delicate fibrils only in the superficial portions of the corium. The deep half contained separate broken and contracted bundles of elastic tissue, mainly knotted together and without continuity. The blood vessels were normal. No inflammatory infiltration or giant cells were present.

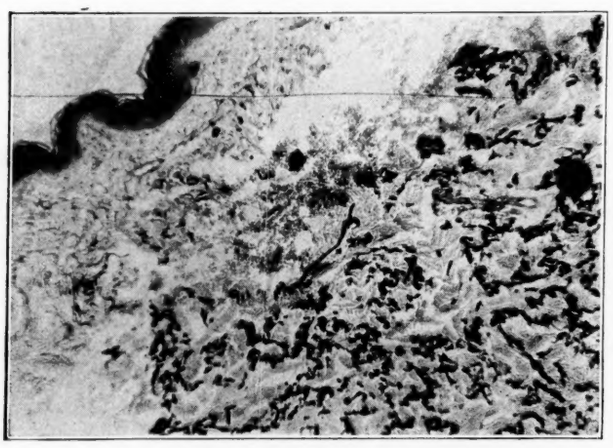

Fig. 4 (case 1).—Section of skin from posterior axillary fold. Verhoeff's elastic tissue stain used. The elastic tissue in the deeper two thirds of the dermis is in broken contracted knots and heavy short coils. The superficial dermis has small delicate fibrils and the epidermis appears in redundant folds. Collagen is not degenerated. Accessory glands of the skin appear normal. Note the demarcation of the two portions of the dermis caused by the difference in the elastic constitution. Reduced from a photomicrograph with a magnification of 100 diameters.

The pieces of skin from the two patients showed a definite degeneration and fragmentation of the elastic tissue, so that the superficial portion of the corium and epidermis had become separated from the deep portion of the skin. There was no evidence of calcification, giant cells or involvement of the blood vessels. The close resemblance between the pseudoxanthoma and senile elastosis described by some observers could not be demonstrated. The collagen fibers did not show the alteration seen in senile skin, and the marked deterioration of the elastic tissue was not present in senile elastosis.

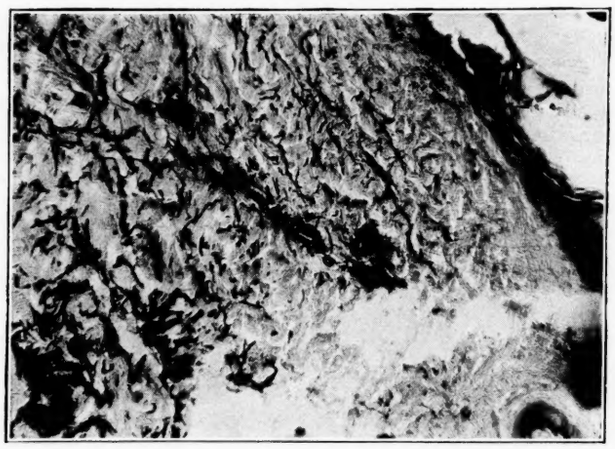

Fig. 5 (case 2).—Section of skin from posterior axillary fold. Verhoeff's elastic tissue stain used. The elastic tissue of the superficial portion of the dermis is in delicate slender fibrils. A gradual thickening and fragmentation of the fibrils is seen in the deeper dermis and some zones have the typical dense separate coils of fibrils broken apart. Reduced from a photomicrograph with a magnification of 100 diameters.

CONCLUSIONS

Pseudoxanthoma elasticum and angioid streaks of the retina are both rare diseases. Up to the beginning of 1934, only seventeen cases had been reported in which these conditions occurred in the same patients. To this number we have added the reports of two cases in sisters with these diseases combined, and also diabetes mellitus.

No evidence as to the etiology of pseudoxanthoma elasticum has been discovered. Some writers express the belief that a hereditary predisposition is present, and others express the opinion that, because of the close resemblance to senile elastosis, pseudoxanthoma elasticum is an evidence of presenility. No satisfactory pathologic examination has ever been made of angioid streaks of the retina, and the etiology is unknown. The latest suggestion is that it is a part of a generalized process of elastic tissue degeneration, involving the skin, circulatory system and eyes. The disease is progressive, and sooner or later vision is impaired. There has been reported no satisfactory treatment. An insufficient number of cases of diabetes mellitus in combination with pseudoxanthoma elasticum have been reported to be of significance, except that the familial tendency of diabetes mellitus is well known, and pseudoxanthoma elasticum has been reported in other members of the same family. The occurrence of pseudoxanthoma elasticum and angioid streaks of the retina in the same patients is frequent and striking, but we are unable to agree that a new disease has been established. No treatment of pseudoxanthoma elasticum has met with any success except in the case reported by Lewis and Clayton,[19] in which the skin of the neck was apparently improved by means of roentgen rays.

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CALCIFICATION OF THE TIBIAL COLLATERAL LIGAMENT

A REPORT OF FORTY-TWO CASES

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Calcification or ossification in the tibial collateral ligament is a relatively frequent clinical entity the significance of which has heretofore been unrecognized or ignored. Pellegrini-Stieda's lesion constitutes the major part of the material in this paper. Kulowski [1] recently reported the first case in the English literature, although about 150 cases had been recorded previously in European publications. Köhler described the condition in 1903, but Pellegrini in 1905 and Stieda in 1907 were the first to study and report its clinical significance. Petrignani [2] reviewed the literature in 1931 and added several of his own cases.

I am reporting observations made in a series of forty-two roentgenologically proved cases of either calcification or ossification of the tibial collateral ligament. I will suggest a classification of various types of this lesion and present a theory of its etiology and pathologic manifestations.

Most of my material was collected from the files of the department of orthopedic surgery, Cook County Hospital, Chicago, and represents cases admitted over an eighteen months period to the services of Drs. Philip Lewin, E. J. Berkheiser, M. H. Hobart, P. H. Kreuscher and D. H. Levinthal. Dr. C. H. Warfield, chief of the department of roentgenology, assisted with the roentgenographic interpretations. Three cases were added to my series through the courtesy of Dr. Arthur Steindler, from the files of the department of orthopedic surgery, State University of Iowa College of Medicine.

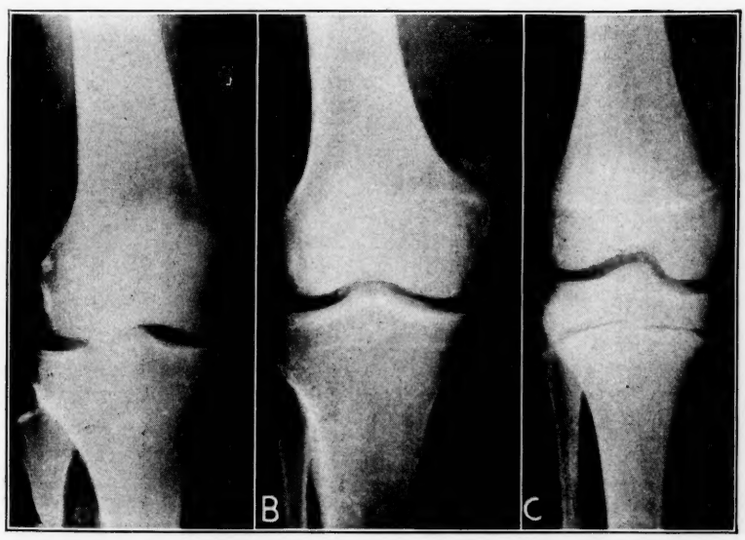


Fig. 1.—Cases of group 1 (Pellegrini-Stieda type): *A*, moderate involvement of the tibial collateral ligament in a woman, aged 50; *B*, marked calcification in a man, corresponding to the second type of Andreesen; *C*, slight process in a girl, aged 12.

CLASSIFICATION

I have classified the various types of calcification or ossification according to the portion of the ligament involved. Four groups are considered, the first of which corresponds to Pellegrini-Stieda's lesion in its classic and varied forms; the subsequent three groups are here described for the first time.

1. *Proximal Area of Calcification.* — This group represents twenty-eight cases of Pellegrini-Stieda's lesion, the largest series in the English literature. The roentgenograms reveal a semilunar shadow overlying, but usually distinctly separate from, the medial femoro-

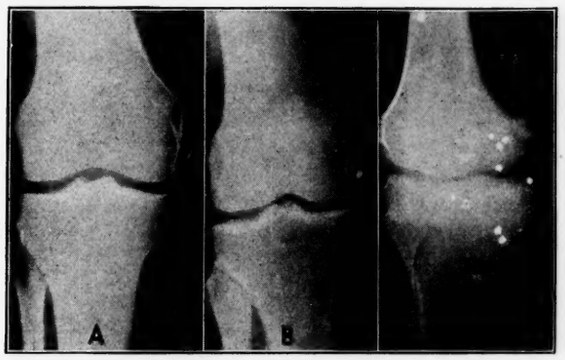


Fig. 2.—Group 2: *A*, condition in a male; *B*, in a female; *C*, destruction of the knee joint and bones from infection following a gunshot wound, with secondary ligamentous calcification, group 4.

condylar angle. Depending on the degree of ligamentous involvement, the shadow may be crescentic, triangular or fusiform. It may be limited to the condylar region or extend distally toward the joint (fig. 1). Andreesen [3] recently reported thirty cases, which he classified into three groups. The first was characterized by a calcified strip, continuous or interrupted, along the inner condyle of the femur; these lesions occurred in persons between the ages of 29 and 41 years. The second group showed a more extensive, shell-like, irregular shadow. In the third series rather large areas of ossification, in direct contact with the inner condyle, were present. The age group ranged from 38 to 52; usually there was greater trauma and an associated hypertrophic arthritis. I recognize these types and consider them subdivisions of my group 1.

2. *Central Area of Calcification.*—The eight cases in this group are characterized by a calcified, pea-sized nodule in the midportion of the ligament, usually just proximal to the joint space or occasionally opposite it (fig. 2 *A, B*).

3. *Combined Areas of Calcification.*—This series of four cases combines the characteristic features of groups 1 and 2.

4. *Irregular Areas of Calcification.*—In this type there is secondary involvement of the tibial collateral ligament by extension of disease from inflammatory processes in the adjacent structures (bursae, tendons, ligaments, synovia and bone). Two examples of this type are included in my series: The first is a case of osteomyelitis of the bones of the knee following a gunshot wound; the second is a case of postoperative suppurative arthritis (fig. 2 *C*).

1. Kulowski, Jacob: Pellegrini-Stieda's Disease, J. A. M. A. **100:** 1014 (April 1) 1933.
2. Petrignani, R.: La maladie de Pellegrini-Stieda, Rev. d'orthop. **18:** 105 (March) 1931.
3. Andreesen, Remmer: Ueber den Stiedaschen Begleitschatten am inneren Oberschenkelknorren, Arch. f. klin. Chir. **174:** 162, 1933.

ETIOLOGY

Incidence.—About 3 per cent of the orthopedic cases appearing at our clinics because of symptoms referable to the knee showed evidence of tibial collateral ligament calcification or ossification.

Race.—No significant predilection was noted in the very heterogeneous group of my series.

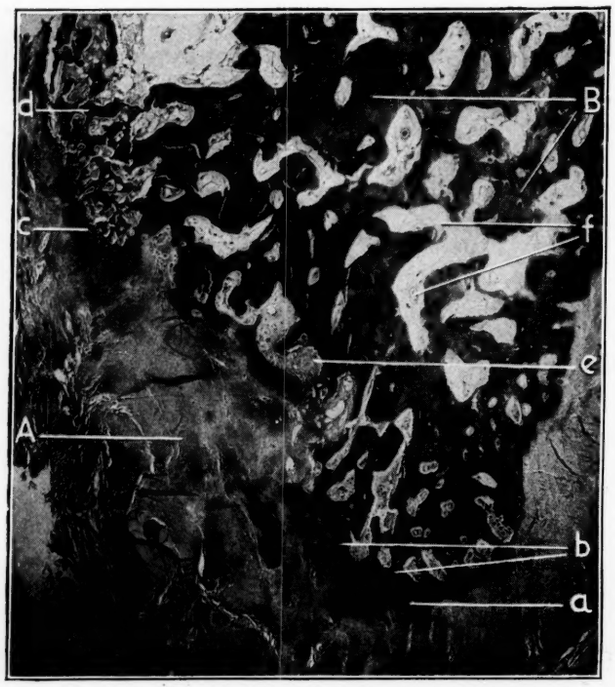


Fig. 3.—Peripheral portion of bony body in tibial collateral ligament as seen under low power: *A*, surrounding soft tissues with zone of fibrous osteoid bone, *a*, and calcified fibrous bone, *b*; fibrous and hyaline cartilage, *c*, in enchondral ossification with primary spongy bone, *d*. *B*, lamellar spongy bone with lacunar resorption, *e*, and loose fibrous bone marrow, *f*.

Sex.—It is usually reported that women are rarely affected. As in other conditions in which exposure to trauma plays a rôle, the male sex naturally shows a higher incidence. However, in the complete series (as well as in group 1) the men predominated over the women in the ratio of five to two. The fact that nearly all the women were of the working class may account for the high incidence in females (figs. 1 *A*, 2 *B*).

Age.—Most observers report that Pellegrini-Stieda's lesion is a disorder of adults between the ages of 25 and 40, and that it never occurs in children. My series includes a 12 year old girl with definite roentgenologic changes (fig. 1 *C*). In group 1 the ages ranged from 12 to 54 years, with an average of 40.1 years; about 40 per cent occurred within the fifth decade. The age incidence in group 2 was much lower, with a mean of 28.5 years; the ages ranged from 15 to 68 years, 75 per cent being included in the second and third decades.

Trauma.—Injury is almost invariably the inciting factor except in the cases in group 4. The accident may be gross, but I would emphasize that repeated minimal injuries (occupational, for example) may initiate the pathologic process.

PATHOLOGY

Pathogenesis.—Calcification in ligaments and tendons has been known for many years and is mentioned in most textbooks on orthopedics. Lewin [4] feels that calcification or ossification of the tibial collateral ligament, which bridges across the bony prominence of the femoral condyle, protected by numerous bursae, is analogous to calcification of the supraspinatus tendon in the region of the subdeltoid bursa. Andreesen [3] believes that the calcification occurs in the attachment of the adductor magnus tendon rather than in the tibial collateral ligament. Such an entity as he describes may occur, as I shall point out later, but probably it is formed secondarily by direct extension or continuity of tissue.

Three theories are held regarding the origin of the calcification: first, that it may follow a fracture with detachment of a spicule of bone at the time of trauma; second, that it is due to a fractureless callus as a result of periosteal tear and proliferation; third, that it arises from the surrounding connective tissues. It is likely that any one of these factors, alone or in combination, can cause bone formation.

Histopathology.—Kulowski [1] treated his patient surgically. The resected specimen showed three types of bone growth: first, a predominant primitive infiltrative type on the basis of connective tissue; second, callus-like bone formation; third, enchondral bone formation, present to the least extent. One of the patients in my series (group 3) was operated on and specimens were

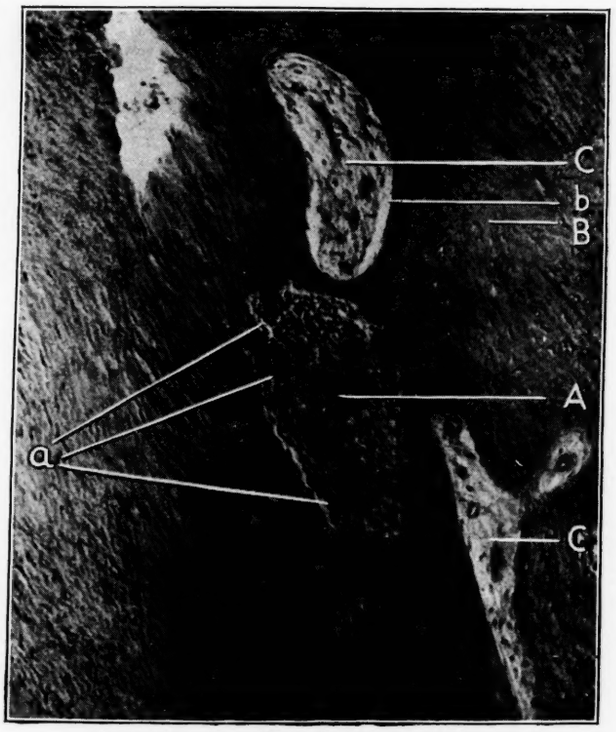


Fig. 4.—Extensive lacunar resorption of one marrow space in the smaller bony body (central area of group 3 case seen in figure 3 *A*), under high power: *A*, young fibrous bone marrow with osteoclasts, *a*, in fibrous bone, *B*; *C*, marrow spaces with older fibrous bone marrow and smooth endosteal surface with osteoid layer and osteoblasts, *b*.

obtained from the proximal and central areas of the ligament. Both specimens showed the presence of fibrous and enchondral bone, but no callus-like bone formation was noted, probably because of the relative maturity of the process. I am indebted to Dr. Ernst

4. Lewin, Philip: Personal communication to the author, Oct. 1, 1933.

Freund of Iowa City for the detailed description of the microscopic changes:

Two sections were examined. The larger section (proximal area, fig. 3) represents essentially a bony body of rather dense spongy bone included in dense fibrous tissue. The latter is probably a part of the ligamentous structures of the inner side of the knee joint. The bony body itself is composed by fibrous and lamellar bone tissue. The distribution of the two kinds of bone tissue is usually such that the inner portion of the thick bony trabeculae is formed by fibrous bone, while the peripheral layers show mature lamellar bone. The borderline between the inner and peripheral types is usually a lacunar cement line. The marrow spaces included in the spongy bone are filled with a loose fibrous marrow, which gradually becomes transformed into fatty bone marrow. The endosteal surface of the bony trabeculae is uniformly smooth in all places. Only a few marrow spaces show lacunar outline with active osteoclastic bone resorption (fig. 4).

The borderline between the bony body and the surrounding connective tissue shows a gradual blending of the two tissues into each other; this indicates that the peripheral layer of the bony body is almost entirely formed by fibrous bone, which toward the periphery is purely fibrous osteoid, and the fibers of the surrounding connective tissue are anchored in fibrous bone as Sharpey's fibers.

In a few places the surrounding connective tissue becomes transformed into fibrous cartilage; in a few places into hyaline cartilage. This cartilage calcifies in a very irregular way and later on is invaded by small hyperemic marrow spaces. The calcified cartilage becomes resorbed, and thin layers of lamellar bone are laid down on the lacunar outline of the cartilage. This is a very primitive form of enchondral ossification in which practically no proliferation of cartilage cells occurs. A rather dense and coarse spongy bone results, whose trabeculae include small particles of calcified cartilage, even at remote distances from the area of enchondral ossification.

In the smaller specimen (central area) the fibers at one margin of the ligament gradually become impregnated by an osteoid substance, thus forming a primitive fibrous bone, which becomes calcified later. In the early stages of the process there is very little difference in structure between the fibrous tissue of the ligament and the fibrous bone. Later, however, the cells included in the fibrous bone assume the appearance of osteocytes.

Comment: The picture in the first instance is that of a more mature and longer existing bone production in the paraarticular tissues. The bone production is actually more or less at a standstill. Only at the periphery a very slow progression or expansion of the bony growth can be noted; this occurs by infiltration of the surrounding connective tissue with osteoid ground substance. Enchondral ossification is present but does not form, by any means, a striking feature. The second specimen represents essentially the same process in an early stage, in which no lamellar bone is seen.

SYMPTOMS

The symptoms of calcification or ossification of the tibial collateral ligament are not pathognomonic of the lesion but are common to most injuries about the knee. A history of trauma, however slight, must not be ignored. Pain is referred to the medial aspect of the knee joint. Complete extension, while possible, is painful, owing to tautness of the injured ligament; consequently the knee is usually held in slight flexion for some time after the injury. Transitory swelling about the knee joint may be observed. Occasionally it is possible to palpate the calcified area.

Before the diagnosis can be made it is necessary to consider such accidents as fracture of a semilunar cartilage, rupture of a cruciate ligament, avulsion of the tibial spine, and detachment of the tibial tubercle. In the event of persistent pain or of tenderness to palpation over the medial side of the knee, one must suspect injury to the tibial collateral ligament. The mechanism that produces an internal derangement of the knee may also cause a concomitant injury to the ligament. The presence of one, therefore, does not necessarily exclude the existence of the other. Roentgenograms made ten days after the injury may be suggestive; a well defined shadow may be present after three weeks.

TREATMENT

No definite surgical procedure has been suggested thus far. Conservative measures are usually advocated: rest during the acute stage, physical therapy later. It is likely that many untreated cases heal spontaneously, without prolonged disability or symptomatic residuums. This is borne out in three cases in which discovery of calcification in the ligament was made incidentally. On repeated questioning, however, a remote injury could be recalled.

In the case treated surgically by Kulowski, the growth recurred. In my case the excess new bone formation of the proximal portion of the ligament and the calcified central nodule were resected, followed by plastic repair of the ligament. After five months, the patient had a full range of symptomless motion. At that time the roentgenogram revealed interesting changes. The proximal area of calcification showed no tendency to regrowth; in fact, there seemed to be some resorption of the residual mass. However, a tangential calcified spur was seen arising from the mediosuperior margin of the condyle, corresponding to the insertion of the adductor magnus tendon. The distinction between this picture and that of calcification or ossification of the tibial collateral ligament tends to refute Andreesen's theory. The roentgenograms also revealed two new areas of calcification in tne central part of the ligament.

It seems reasonable to believe that a plastic lengthening of the ligament, which relaxes the tension without unduly influencing its lateral stability, will alleviate the pain in cases resistant to other forms of treatment.

COMMENT

The relative frequency with which calcification or ossification occurs in the tibial collateral ligament warrants its recognition as a clinical entity in the differential diagnosis of traumatic lesions about the knee joint. With attention focused on this lesion, many cases that previously went unrecognized or undiagnosed will be made available for study. Research should be directed particularly toward determining the pathologic process.

The task of developing a satisfactory plan of treatment devolves on the clinician.

SUMMARY

1. Forty-two cases of calcification or ossification of the tibial collateral ligament were observed and classified.

2. A group of twenty-eight cases of Pellegrini-Stieda's lesion is included in this series.

3. The lesion is relatively frequent and trauma plays an important rôle.

4. A further study of the pathologic changes reveals ossification as well as calcification of the ligament.

5. Plastic repair of the tibial collateral ligament is recommended as a form of treatment worthy of consideration.

702 Barry Avenue.

ACQUIRED SENSITIZATION TO SODIUM ISOAMYLETHYLBARBITURATE (SODIUM AMYTAL)

AS EVIDENCED BY CUTANEOUS ERUPTIONS: REPORT OF FOUR CASES

ALFRED M. LANGENBACH, M.D.
ST. LOUIS

In 1923 Shonle and Moment [1] announced the synthesis of various new barbituric acid derivatives. In one group, designated as the dialkyl group, the isoamylethylbarbituric acid (amytal) was found to have the greatest hypnotic powers.

The sodium salt of this acid was prepared in 1926 [2] and thoroughly introduced to the medical profession, since which time it has seen an extensive usage in anesthetics, medicine, obstetrics and surgery. This salt differs from the sodium salt of diethyl barbituric acid (soluble barbital) in that in the former an isoamyl group replaces one of the diethyl groups of the latter. With the exception of this difference in chemical composition the two drugs are chemically identical. In the cases to be reported here it will be indicated how such

Fig. 1.—Eruption on face in case 1.

a difference in radicals produces differences in reactions in man.

Fischer and von Mering [3] introduced the first dialkyl barbituric acid (veronal) to medicine in 1903. The phenylethylbarbiturate (luminal) was introduced nine years later. During the year that followed, the use of the latter preparation was first reported,[4] and almost immediately reports began to appear [5] on the toxic effects noted.

Year after year these reports have actually piled up regarding the various toxic effects noted, of which the skin reactions have been in no minority. This is true not only of phenylethylbarbituric acid but of all of

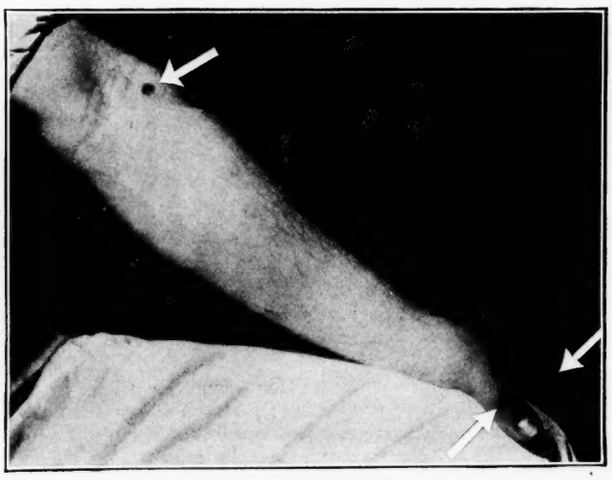


Fig. 2.—Eruption on arm in case 1.

the barbiturates used today with the exception of the sodium salt of isoamylethylbarbiturate (sodium amytal). A hasty perusal of the literature revealed no reports of toxicity evidenced by a skin rash due to this barbiturate, and Lundy [6] in a thorough, exhaustive review of the barbiturates even makes no mention of toxic skin reactions resulting from the use of this preparation.

With this in mind I felt that the following cases warranted presentation:

REPORT OF CASES

CASE 1.—A. L., a man, aged 32, began taking sodium isoamylethylbarbiturate (sodium amytal) in 1929 for the induction of sleep. He was in good health but experienced difficulty in getting to sleep, owing to business and domestic worries. The capsules were taken at the rate of one 3 grain (0.2 Gm.) capsule each night and as often as seven nights a week. He experienced sound sleep, awoke with no residual effects, and experienced no toxic reactions afterward.

As causative conditions began to correct themselves the nightly dose became triweekly, biweekly, weekly and then at irregular intervals. Finally about the summer of 1931 the drug was discontinued entirely and no further use was made of it until the winter of 1932. At that time business worries again caused sleepless nights and he turned to the same capsules which had helped him to sleep before.

Nine hours after taking the first capsule he noticed a reaction in the form of a skin rash. He was seen on the morning following the taking of the first capsule and was found to have a blotchy eruption about the face and arms. The rash was macular, some of the macules being as large as a dime (18 mm.). The macules were sparsely distributed about the arms but were closer about the face. They were a bright rose, did not itch and were more closely distributed on the right side of the parts mentioned. When pressure was applied they faded somewhat but not entirely. The mucous membrane

1. Shonle, H. A., and Moment, A.: Some New Hypnotics of the Barbituric Acid Series, J. Am. Chem. Soc. **45**: 243-249, 1923.
2. Page, I. H., and Coryllos, Pol: Isoamylethylbarbituric Acid (Amytal): Its Uses as an Intravenous Anesthetic, J. Pharmacol. & Exper. Therap. **27**: 189-200 (April) 1926.
3. Fischer, E., and von Mering, J.: A New Group of Hypnotics, Therap. d. Gegenw. **44**: 97-101, 1903; Veronal, ibid. **45**: 145, 1904.
4. Hauptmann, Alfred: Luminal in Epilepsy, München. med. Wchnschr. **254**: 1907-1909, 1912.
5. Farnell, F. J.: Luminal: Its Toxic Effects, with the Report of Two Cases, J. A. M. A. **61**: 192-193 (July 19) 1913. Blickert, E.: Luminal, a New Hypnotic, Ugesk. f. læger. **75**: 1149-1153, 1913.
6. Lundy, J. S., and Osterberg, A. E.: Review of the Literature on the Derivatives of Barbituric Acid, Proc. Staff Meet., Mayo Clin. **4**: 386 (Dec. 18) 1929.

of the upper lip contained several patches and the lip was edematous. These lesions were somewhat indurated, in contrast with the skin lesions. There was also edema about the lower eyelids. In this case there were no vertigo, eye disturbances, pyrexia, cyanosis, acceleration of pulse rate, or disturbances of the nervous system, the respiratory tract or the urinary system. The urine was entirely normal. The rash lasted about three days and then gradually faded away over a period of seven days, leaving a brownish pigmentation and a slight scaling at the site of each macule. The edema of the lip lasted about a week.

He was confident that the rash was due to the capsule that he had taken but was at a loss to explain why he had not experienced a similar reaction when the same capsules were taken about two years previously. He was thereby induced to resume the use of the capsules when indicated.

This he did. About six weeks later he took another capsule containing 3 grains of sodium isoamylethylbarbiturate on retiring. He slept well and awakened refreshed but exhibited the same skin eruptions to even a greater degree than the first display. The rash was identical with the first in appearance but more macules were present.

Sept. 2, 1933, in a desperate attempt to get to sleep, he disregarded all his former experiences and took a third capsule of the same dose. On awakening the next morning he looked at once for the eruption and was not disappointed. The rash this time was of about the same intensity and was distributed to the same locations as the former rashes; i. e., the face, neck, lips and upper arms. The rest of the body was free of any eruption. Other physical and chemical observations were made at this time and will be presented in a future report.

He was urged to use isoamylethylbarbiturate (amytal), not the sodium salt as before. With this he experienced an identical eruption but not as intense as with the sodium salt.

The idea that some impurity in the drug might be causing the eruption prompted a chemical analysis. No impurities were reported found.

With these observations made, my interest was aroused to see whether this acquired sensitivity extended to and included the other barbiturates, as noted by other observers.[7] He was tried on phenylethylbarbituric acid (luminal) and experienced no rash nor other toxic symptoms. At the present time he is taking the latter preparation nightly.

CASE 2.—D. L., a woman, aged 27, married and employed as a clerk, first began taking sodium isoamylethylbarbiturate in 1930 on the advice of her physician. The drug was taken at irregular intervals for the induction of sleep. An average of one 3 grain capsule twice a week was continued for about fourteen months. No ill effects were noted on the mornings following the taking of the capsules and no resultant evidences of sensitivity of any kind were observed. At no time did a rash appear during this period.

After using the medicine for the time stated, she discontinued the capsules entirely for a period of about a year, during which time she took no medicine whatever. She then returned to her physician because of "nervousness" and insomnia. He again prescribed the sodium isoamylethylbarbiturate in 3 grain doses.

The physician was called the morning following the taking of the first capsule to see "a breaking out." This rash was identical in distribution and appearance with that described in the first case.

A second capsule taken three weeks later produced a similar skin reaction the following day. By this time she was confident that the "new pills" were causing the rash. She was informed that the medicine would be changed and isoamylethylbarbiturate (amytal) was ordered. This likewise produced a rash within twelve hours after the ingestion of the capsule. The rash, however, was not as intense nor was it as thickly distributed as were the previous rashes resulting from the sodium salt. The edema of the lip was also much less.

She was then tried on phenylethylbarbiturate (luminal) but no skin reactions resulted. The latter preparation she is taking at the present time with no evidences of toxicity or allergic reactions to date. As far as can be determined, she has never taken any barbiturates other than those mentioned.

CASE 3.—A. M., a man, aged 28, married and employed as a grocery clerk, was ordered to take sodium amytal in 1931. He took about 120 capsules of 3 grains each during the period of one year. Never did he take more than one capsule during any twenty-four hour period. The physical condition requiring the drug subsided and he discontinued it entirely for a period of ten months, during which time he took no drugs other than tincture of digitalis in small doses.

One morning he presented himself for the inspection of a rash and "a swelling of the lip." On questioning he affirmed that he had taken no medicine other than digitalis and "one blue capsule" (sodium isoamylethylbarbiturate) the night previously. The rash was similar to that in the two previously cited cases but was more thickly distributed, and the edema of the lip was more intense. It was suggested that the rash "might be due" to the capsule and it was suggested that he try another of the capsules in two or three weeks after the rash had disappeared. This he did with a resultant rash within twenty-four hours identical with his first eruption. Since then he has flatly refused to take any other capsules because his facial appearance and the rash interfered too seriously with his business. No other barbiturate has been used in this case and no rash has since appeared on the skin.

CASE 4.—Mrs. S. E., aged 23, was first seen because of a missed menstrual period shortly after marriage. A diagnosis of pregnancy was made and the patient was so informed. Numerous nervous and mental manifestations promptly resulted from the realization of her condition. Worry over financial matters and fear of the delivery caused almost a complete breakdown of what was, to begin with, none too good a nervous system. Sodium isoamylethylbarbiturate was ordered to be taken in 3 grain doses at nights when necessary. About three or four such capsules were taken weekly with the desired good results. No toxic action or reactions were noted at any time during this period of about four months.

The child was delivered at term and for the delivery three capsules of 3 grains each of sodium isoamylethylbarbiturate were used. No other drugs were taken following this for a period of thirteen months. No eruption was seen during this entire period.

After thirteen months a second child was delivered and four of the 3 grain capsules of sodium isoamylethylbarbiturate were given to her during an eight hour period. No other drugs were used.

When she was seen the next day (eighteen hours after the first capsule) a rash had developed about the face and lips similar to that previously described except that the macules were smaller and less profuse. There were only a few lesions about the body, most of the eruptions being on the face and arms. There were a few lesions on each hand. This rash was also lighter in color and left very little pigmentation when it faded. No other drugs were used during the delivery and no eruption has since been seen. She has not taken any of the capsules of sodium amytal since, so that no check has been made in this case. Like the others, her rash also went through the scaling process.

The child's skin showed no eruption at any time.

SUMMARY

In four cases a sensitivity to sodium isoamylethylbarbiturate developed as evidenced by skin eruptions. These eruptions were distributed chiefly on the face, neck, arms, hands and mucous membranes of the lips and mouth.

None of the cases cited showed any sensitivity to the drug when it was first administered. The sensitivity developed during a period of from eight to fourteen months after the drug had been taken and then discontinued.

The primary use of the drug ranged from nine months to two years. The average 3 grain dose was

7. Vallery-Radot, Pasteur, and Blamoutier, P.: By-Effects on Skin and Mucosa from Barbital and Its Compounds, Bull. et mém. Soc. méd. d. hôp. de Paris **49**: 1382-1385 (Nov. 6) 1925.

never exceeded in three cases. Twelve grains was used in one case during a period of eight hours.

This sensitivity differs from that previously noted [7] in that it does not extend to other barbiturates.

5427 Southwest Avenue.

Clinical Notes, Suggestions and New Instruments

AN ATYPICAL CASE OF TUBERCULOSIS OF THE SPINE

CHARLES K. PETTER, M.D., OAK TERRACE, MINN.
AND
J. P. MEDELMAN, M.D., MINNEAPOLIS

This case is presented because of the unusual lesions observed in the spine. Tuberculosis of the spine usually presents a typical roentgenologic picture and its diagnosis is ordinarily not difficult.

REPORT OF CASE

History.—A white woman, aged 50, entered Glen Lake Sanatorium, Nov. 18, 1931, with the following complaints: (1) discharging left ear and enlarged cervical nodes; (2) loss of weight and weakness; (3) a mass in the left lumbar region; (4) fever and chills accompanied by occasional night sweats.

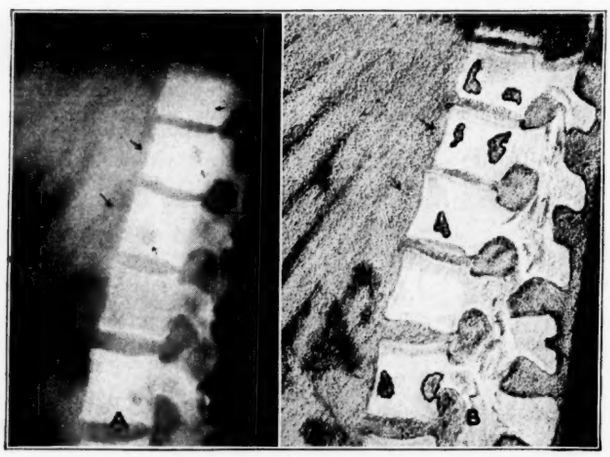


Fig. 1.—Lower dorsal and lumbar spine: *A*, as observed roentgenographically; *B*, diagrammatically, showing lesions in detail.

The cervical adenitis was first noted in July 1931, following a mastoid operation. However, it was later recalled that a few slightly enlarged glands were present before the operation. The left ear had been discharging since the mastoidectomy.

Loss of weight amounting to 25 pounds (11.3 Kg.) and weakness had been gradual over a period of two years.

The mass in the lumbar region to the left of the spine was first discovered about a year before admission. Since that time it had become progressively larger.

The patient stated that she had had occasional night sweats for the past six months and that chills and fever had occurred at varying intervals during the same length of time. During this time she also noted that her temperature sometimes rose to 102 F.

The patient had tuberculosis of the left knee in 1909 and of the left elbow in 1912. She was treated conservatively for both and recovered with only slight limitation of motion in the elbow.

In 1921 a laparotomy was performed at which the right ovary and a cyst from the left ovary were removed. An appendectomy was also done. Examination of the tissue removed revealed tuberculosis of the right ovary, appendix and peritoneum.

From the Departments of Orthopedics and Roentgenology, Glen Lake Sanatorium, Oak Terrace, Minn.

Later in 1921 the patient had pleurisy with effusion on the left side, for which she received treatment in a sanatorium for two years. She was discharged symptom free at that time.

She was then well until January 1927. At that time a large gland appeared in the left groin and a few days later an abscess pointing in this region was aspirated. Aspiration was

Fig. 2.—Left sacro-iliac region, showing lesion near joint.

repeated several times, with evacuation of large quantities of pus. The pus was apparently not examined in a laboratory and a single anteroposterior film made of the lumbar spine is reported as having been negative.

The remainder of the past history and the family history is unimportant for the purposes of this report. There had never been any complaint leading one to suspect primary malignant tumor.

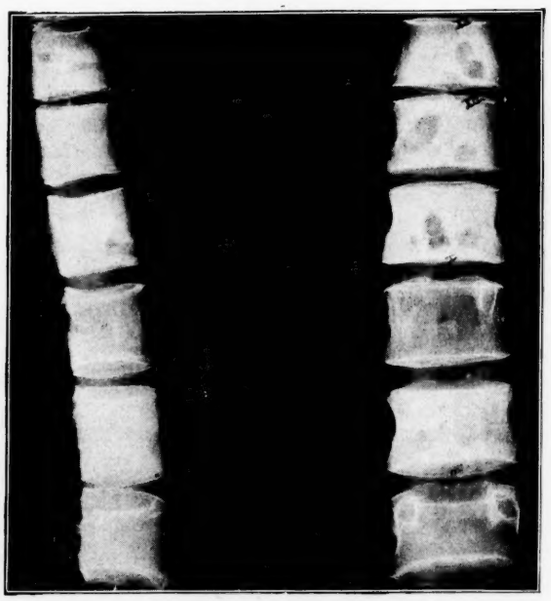


Fig. 3.—Anteroposterior and lateral roentgenographic appearance of vertebral bodies at autopsy.

Physical Examination.—The patient was pale and poorly nourished.

There was a scar of a mastoid operation on the left and a thin, watery discharge from the left ear.

There were numerous greatly enlarged cervical lymph glands on the left, with reddening of the skin over two of these and

discharge from one. On the right side there were a few smaller palpable glands 2 or 3 cm. above the clavicle. A few very small glands were palpable in the axillae.

There were no abnormalities in the chest.

The liver was palpable 3 cm. below the costal margin. No abdominal masses were felt. From the umbilicus to the symphysis there was a healed midline incision.

A soft tissue mass 5 by 10 cm. in size was visible immediately adjacent to the upper lumbar vertebrae on the left side. The mass was firm and finely nodular. There was no redness of the overlying skin and the mass was not tender.

No complaint of pain and no muscle spasm could be elicited on movement of the spine.

There was muscle atrophy involving the left arm, with limitation of extreme flexion and supination at the elbow, but no pain on motion of the elbow joint. There was marked atrophy of the muscles of the left thigh, with free motion of the left hip and knee.

Roentgen Examination.—Only the significant observations are given. There was thickening of the pleura over both lungs, but no evidence of parenchymal pulmonary disease.

New bone formation with rounded areas of bone destruction were present in the bodies of the eleventh and twelfth dorsal vertebrae and to a greater extent in the bodies of the first and third lumbar vertebrae. There was a similar process in the left ilium near the sacro-iliac joint but not involving the joint. It was concluded that the observations represented malignant metastasis, as shown in the accompanying illustrations.

The right kidney was normal in size, shape and position. The shadow of the right psoas muscle was visualized and was normal. There was a large, poorly defined density in the left kidney region, and the shadow of the left psoas muscle was obliterated. These observations were interpreted as being due to a kidney tumor or a paranephritic abscess. Because of the appearance of the spine it was felt that the weight of evidence was in favor of the former, even though hypernephroma usually gives rise to metastases that are predominantly destructive in bone.

Laboratory Examination.—On admission, examination of the blood showed 4,100,000 red blood cells, 6,600 white blood cells, and a hemoglobin of 81. A differential count showed 65 polymorphonuclears, 25 lymphocytes, 9 large mononuclears, and 1 eosinophil.

Only two specimens of sputum were ever obtained. Both were negative for tubercle bacilli on smears. Examination of the urine gave essentially negative results throughout. No red blood cells were found on repeated examinations.

A negative Wassermann reaction was present.

A guinea-pig inoculated with washings from the left ear was examined, January 28, and showed tuberculosis. Tuberculosis was also present in a guinea-pig inoculated with material aspirated from a cervical gland and killed, February 11. A second pig was inoculated with material aspirated from a cervical gland. This pig was killed, May 5, and tuberculous lesions were present. The organisms were typed and found to be of the human strain.

Course in the Sanatorium.—The patient was confined strictly to bed during her entire period of hospitalization. She received routine sanatorium care and was treated only symptomatically. She was too ill for pyelography to be attempted.

About January 1, a defect was palpated in the tip of the spinous process of the second lumbar vertebra. This was visualized on films, January 16. The tip of the spinous process was removed for microscopic diagnosis. The biopsy wound healed readily. Section of the tissue removed showed clusters of tubercles. They were composed of epithelioid cells radially arranged. Occasionally one showed a central giant cell. There was lymphocytic infiltration at the periphery of the tubercles, and infrequently some of them were found in the center of the tubercles. The pathologic diagnosis was tuberculosis.

Following admission, the patient's temperature varied within wide limits. The daily variation was often between 96 and 103 F. During her last sixty days the temperature varied from 97 to 101.

The patient's course was progressively downhill. She died, June 9, 1932, after 204 days of hospitalization.

The anatomic diagnosis from the autopsy protocol was: (1) tuberculous spondylitis; (2) tuberculous peritonitis; (3) tuberculous lymphadenitis; (4) left psoas abscess; (5) pleural adhesions; (6) pericardial adhesions.

COMMENT

In this proved case of tuberculosis the roentgen diagnosis of metastatic carcinoma of a mixed osteoclastic and osteoplastic type was made. The multiplicity of the lesions was in favor of metastasis. So also was the appearance of the lesions themselves, in which there was an increase in density of the vertebral bodies together with circular or rounded areas of destruction in the bodies and their appendages. The absence of collapse of the bodies in spite of the destruction near the articular margins suggested metastatic involvement. Likewise the complete absence of involvement of the vertebral disks pointed toward the presence of metastatic carcinoma.

Tuberculosis was considered in the diagnosis but was discarded because we felt that in tuberculosis (1) the lesions would not be so widespread, (2) new bone formation would play a less prominent part, (3) there should be some vertebral collapse, and (4) the intervertebral disks could hardly have escaped destruction through extension of the process from the adjacent vertebrae.

Actinomycosis was a roentgenologic possibility, but in actinomycosis one would expect larger abscesses, draining sinuses, and a primary site of involvement.

Of special interest in this case is the fact that the organisms, at least in the involved glands, were identified as being of the human strain.

A SEASONAL DERMATITIS CAUSED BY SYNERGIC INFECTION

A. J. BRIER, M.D., AND J. C. HOFMANN, A.M., TOPEKA, KAN.

History.—A boy, aged 15 years, in the early part of 1933 was referred to one of us (A. J. B.) for dermatitis, which was thought to be an allergic manifestation. The onset was described as being somewhat acute, having begun five or six years before with primary lesions, starting in the interdigital spaces as groups of blisters and rapidly becoming pustular. It was reported that this followed a day spent in playing along the bank of a creek known to be polluted with sewage. The lesions appeared in "crops," undergoing their metamorphosis while others were forming. Early in their existence the vesicles contained a clear, colorless, serous fluid before they became pustules. This sequence continued; new vesicles formed as the pustules healed. The patient's hands became unsightly, causing him much mental as well as physical discomfort, since his hands itched and were very sore during an exacerbation of the trouble.

The first appearance was in the spring and progressed until the advent of summer, when the lesions cleared up. The following autumn after frost they again made their appearance and went through the same cycle—progressive vesiculation, pustulation with soreness, and healing. As soon as cold weather arrived the lesions disappeared, leaving but faint traces for a time. The skin then became quite normal and continued so until the following spring, when the whole process was reenacted.

This semiannual occurrence continued over a period of five or six years except during one winter, which was mild in this locality; that year the lesions lasted from the onset in autumn until the coming of hot weather. The fall before he was seen by us was the first in which he failed to note the reappearance of the dermatitis, it being deferred until the following spring.

The patient had had the ordinary diseases of childhood with no serious illness. There was no history of food disturbances, headaches, hay fever, asthma or other common allergic symptoms. Also the family history was essentially negative. The patient was found to react to none of the food or inhalant groups. The Wassermann reaction was negative.

On examination, vesicles and pustules were found on the backs of each hand, particularly on the medial and lateral borders, on the dorsum of the fingers and in the interdigital spaces. The vesicles had some tendency to clumping, but no confluence was observed. Each was 2 or 3 mm. in diameter,

and over the whole area there was considerable hyperemia of the skin. The pustules, about 5 mm. in diameter, were quite discrete and contained a thick yellow pus. No other lesions were seen on the body, the most proximal being at the level of the wrist.

Diagnosis and Treatment.—Since the patient had been treated by a number of general practitioners and dermatologists without success, and he manifestly showed no indications of allergy, it was suggested that the nature of the infecting agent should be determined if possible. The seropurulent material from the pustules was therefore examined bioscopically, and since nothing could be determined by this means the material was plated for culture on infusion blood agar and Sabouraud's mediums. In the latter the inoculum produced no growth, but on blood agar colonies of Staphylococcus aureus and a highly hemolytic gram-negative streptococcus were found in about equal numbers as the sole flora.

Early treatment consisted of local applications, which gave no apparent relief. Subsequently an autogenous bacteriophage antigen was prepared from the staphylococcus. Very small increasing doses were given at daily intervals for four days; then every second day, and finally once each week. Improvement after the first small dose was quite noticeable and subsequent improvement was highly satisfactory with the rapid disappearance of the lesions. However, the vesicles continued to make their appearance, but instead of continuing on to pustulation they merely dried up. Three weeks after he received the first dose of bacteriophage antigen, the blisters lasted only over night.

An autogenous vaccine was then prepared from the streptococcus, and minute doses of it were given twice a week, with the resulting complete disappearance of all indications of the infection.

COMMENT

In determining on the method of treatment for this synergic infection, we gave the autogenous bacteriophage antigen with the hope that the nonspecific protein action of the peptone and the lysed culture of staphylococcus would be sufficient to overthrow the immunologic balance maintained between the host and the streptococcus simultaneously with its specific activity in creating more potent antibodies against the staphylococcus. Unfortunately, however, such was not the case, for while great improvement followed the administration of the bacteriophage

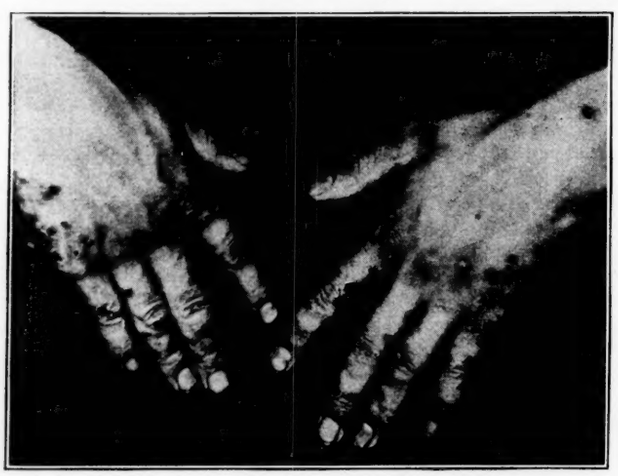


Fig. 1.—Hands near the beginning of bacteriophage treatment, April 19, 1933.

antigen, recovery did not occur until after injections of the bacterin prepared from the streptococcus involved.

The appearance of the lesions after they ceased to become pustules gave the impression that the streptococcus was the primary infecting agent in creating the blisters or vesicles. Such was demonstrated to be the case in subsequent culture of the serous fluid from them. They ceased to become pustules, evidently because of the increased resistance to the staphylococcus. This would indicate that the staphylococcus was the secondary infecting organism.

SUMMARY

1. A case of dermatitis of long standing was caused by synergic infection with Staphylococcus aureus and a highly hemolytic gram-negative streptococcus.

2. Its origin is indefinite and obscure, though the patient reported playing by a highly polluted creek the day before first noticing the acute onset. This may be significant in conjunction with the gram-negative streptococcus.

3. The infection was only of a seasonal nature, making its appearance in the spring and autumn, and was bipartite, beginning with vesicles which became pustules.

Fig. 2.—Appearance April 27, eight days later.

4. It was evidently noncommunicable and remained localized on the hands in spite of an apparent opportunity for spreading to other parts of the body.

5. Local applications of antiseptics and disinfectants proved valueless in treatment.

6. Injection with an autogenous staphylococcus bacteriophage antigen caused the pustulation to cease, and the final treatment with autogenous streptococcus vaccine caused a complete disappearance of the infection.

615 Central Building.

MARKED CREATINEMIA: REPORT OF TWO FATAL CASES

CHARLES S. HIGLEY, M.D., AND R. O. BOWMAN, PH.D.
CLEVELAND

Following the discovery of creatinine in normal blood and accurate methods of determination by Folin[1] in 1914, Myers and Lough[2] demonstrated the value of the blood creatinine in determining the prognosis in cases of renal insufficiency. They pointed out that rise in blood creatinine is a more important sign of renal impairment than either uric acid or urea, since creatinine is more readily eliminated by the kidney than the other products and is endogenous, while the others are exogenous. They stated that "a rise in blood creatinine above 5 mg. per 100 cc. is of grave prognostic significance and portends an early fatal termination unless the rise is due to some acute renal condition."

The differentiation between acute and chronic renal disease in evaluating the prognostic significance of blood creatinine is important. There have been several cases of marked creatinemia with recovery reported in cases of acute renal disease. Myers[3] reported a case of nephrolithiasis with a creatinine of 23.3 mg. and Selman and Linegar[4] reported a case of severe asthma with accompanying medical shock in which the creat-

From the Departments of Medicine and Biochemistry, Western Reserve University at City Hospital.

1. Folin, Otto: J. Biol. Chem. **17**: 475, 1914.
2. Myers, V. C., and Lough, W. G.: The Creatinine of the Blood in Nephritis: Its Diagnostic Value, Arch. Int. Med. **16**: 536 (Oct.) 1915.
3. Myers, V. C.: Practical Chemical Analysis of Blood, ed. 2, St. Louis, C. V. Mosby Company, 1924.
4. Selman, J. J., and Linegar, C. R.: J. Lab. & Clin. Med. **18**: 1032 (July) 1933.

inine rose to 15 mg. Recently at Cleveland City Hospital we have seen a case of corrosive mercuric chloride poisoning with recovery in which the creatinine rose 24.3 mg.

We have been interested in the height to which the blood creatinine may rise before death in cases of chronic renal disease. It is generally recognized that blood creatinine values approaching 30 mg. or over are rare. Only two cases are mentioned in the literature in which the creatinine approached this figure. Myers and Fine [5] mention a creatinine of 33.3 mg. and Gettler and St. George [6] mention one of 42 mg. At City Hospital, by means of the Myers modification of the Folin method,[3] a total of 1,652 blood creatinine determinations were performed in the past thirty-three months. The majority of these were in cases of known renal insufficiency. Only six of the determinations were above 30 mg. and represented determinations in only two cases. There were thirty determinations with values between 20 and 30 mg., representing determinations in eleven cases. All of these cases terminated fatally with the exception of the case of mercuric chloride poisoning.

TABLE 1.—*Determinations in Case 1*

Date	Urea Nitrogen	Creatinine	Carbon Dioxide	Blood Pressure	
				Systolic	Diastolic
10/12/32	141	17.5	....	174	120
10/15/32	139	21.0	53.0		
10/17/32	153	25.0	....	178	112
10/18/32	...	22.8	16.4	170	115
10/19/32	153	23.0	24.0		
10/20/32	...	20.7			
10/21/32	145	22.0	29.0		
10/24/32	163	22.6	13.6		
10/26/32	156	22.1	18.3	210	140
10/27/32	154	23.0			
11/ 1/32	152	23.0			
11/ 5/32	153	22.2	29.6	180	120
11/ 7/32	145	21.3	50.0	212	106
11/ 8/32	140	22.3	44.7	188	132
11/15/32	172.4	29.3	....	210	150
11/17/32 Patient died					

TABLE 2.—*Determinations in Case 2*

Date	Urea Nitrogen	Creatinine	Carbon Dioxide	Blood Pressure	
				Systolic	Diastolic
2/14/33	35.2	6.9	....	184	102
2/15/33	39.5	10.4	32.4	178	100
2/16/33	14.0	4.6	35.3	146	76
2/18/33	40.1	4.5	....	154	84
2/21/33	62.2	10.3	40.0	190	105
4/ 3/33	127	29.0	53.0	170	90
4/ 4/33	120	28.6	45.7		
4/ 6/33	142	30.0	38.0	180	195
4/10/33	146	30.0	40.9	230	195
4/11/33	146	30.0	41.0	195	140
4/13/33	166	31.0	31.5	180	98
4/17/33	270	35.0	28.7		
4/17/33 Patient died					

Two cases of marked creatinemia in patients with chronic renal disease are here reported, both having been thoroughly studied during their clinical course and post mortem.

REPORT OF CASES

CASE 1.—R. R., a Negro, aged 27, had arteriolar nephrosclerosis, diagnosed clinically and confirmed at autopsy. Death was due to uremia and a terminal bronchopneumonia.

The patient was able to be up and about the ward until November 5, when his creatinine value was 22.2 mg. (table 1). At that time he developed convulsions and was confined to bed. This case is of interest because of the lack of clinical signs proportionate to the blood chemistry observations and illustrates the prognostic value of the blood creatinine. In spite of the paucity of subjective symptoms, the marked rise in creatinine prophesied an early fatality.

CASE 2.—R. G., a white woman, aged 46, had chronic glomerulonephritis, diagnosed clinically and confirmed at autopsy. Death was due to uremia and a terminal bronchopneumonia.

This case is of interest because of the high antemortem blood creatinine value and because it again demonstrates the prognostic significance of the blood creatinine. The patient felt well enough, February 21, with a creatinine of 10.3 mg. (table 2) to insist on release from the hospital. She returned, April 3, and the course was progressively down hill.

CONCLUSIONS

Blood creatinine is an important aid in determining prognosis in cases of chronic renal insufficiency, regardless of the patient's general condition. This fact is demonstrated in the two cases reported.

13224 Shaker Square.

5. Myers, V. C., and Fine, M. S.: J. Biol. Chem. **20**: 391, 1915.
6. Gettler, A. O., and St. George, A. V.: The Value of Modern Blood Chemistry to the Clinician, J. A. M. A. **71**: 2033 (Dec. 21) 1918.

A SIGMOID ASPIRATOR

WILLIAM Z. FRADKIN, M.D., BROOKLYN
Assistant Surgeon, Jewish Hospital of Brooklyn

To facilitate the method of obtaining rectal or sigmoidal contents in patients suffering with intestinal disorders, a sigmoid aspirator has been devised. The instrument is 8 inches

Fig. 1.—Barrel of aspirator.

long and three-fourths inch in diameter. It is composed of a barrel and an obturator. Both present four openings, each one-sixteenth inch diameter about one inch from the distal end. These openings correspond with each other when the obturator is inserted into the barrel. The obturator consists of a hollow tube, the distal end of which is enlarged in order to fit accurately into the distal end of the barrel. The proximal end of the obturator presents a lock mechanism and also a well

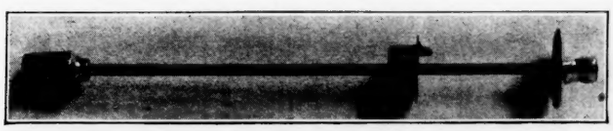


Fig. 2.—Obturator of aspirator.

ground tip, which is made to fit an ordinary Luer syringe. The openings in the barrel may be opened or closed by rotating the obturator at *R*. Figure 1 shows the barrel. Figure 2 shows the obturator with lock mechanism. Figure 3 shows the instrument with Luer syringe attached.

TECHNIC

The sterilized "closed" aspirator is well lubricated and inserted into the anus. The patient is told to breathe deeply while the instrument is passed gently into the rectum for four

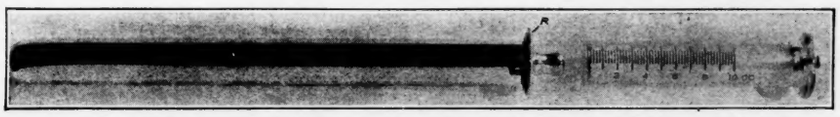


Fig. 3.—Sigmoid aspirator with Luer syringe attached.

or five inches. No force should be used when passing the instrument. The syringe is attached, *R* is turned to the open position, and the plunger is gently withdrawn. If no fluid appears, the instrument is rotated or about 10 cc. of air or sterile fluid is injected into the bowel. This will cause a free flow of intestinal contents into the syringe.

ADVANTAGES

The sigmoid aspirator offers the following advantages:

1. The specimen is collected rapidly with simplicity and cleanliness.

From the Pathology Department, Jewish Hospital of Brooklyn.
This instrument is manufactured by George Tiemann & Co., New York.

2. The stool specimen is obtained in a fresh and warm state.
3. The instrument makes possible the collection of a stool specimen through a sterile field and into a sterile tube for transportation to the laboratory.
4. "Sterile" washings of the intestinal mucous membrane are easily obtainable.
5. The specimen is collected at the physician's convenience.
6. It avoids outside contamination.
7. The simplicity of the technic will make stool examinations by the physician a common rather than a rare occurrence and thus lead to a more scientific approach to the so-called nonspecific gastro-intestinal disorders.

955 Eastern Parkway.

Council on Physical Therapy

THE COUNCIL ON PHYSICAL THERAPY OF THE AMERICAN MEDICAL ASSOCIATION HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORTS.

H. A. CARTER, Secretary.

FISCHER DIATHERMY AND ELECTRO-COAGULATION UNIT, MODEL "H," ACCEPTABLE

The H. G. Fischer & Company, Chicago, submitted the Type "H" Diathermy Machine to the Council for consideration. The company claims that this unit will fill the requirements of medical and surgical diathermy practice. One of the units was investigated in a physical laboratory acceptable to the Council. This machine was taken apart and examined carefully for insulation defects and defects in mechanical construction of the various parts, and a critical survey was made of the whole assembly. A number of physical tests were made under conditions resembling those in medical practice.

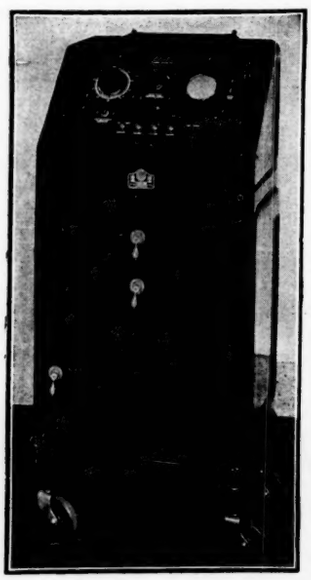


Fig. 1.—Fischer Diathermy and Electrocoagulation Unit, Model "H."

The machine has a simplified control. The sole adjustment by means of a variocoupler with fixed spark gaps and a fixed reactor in the primary circuit of the 60 cycle transformer is a feature that merits acceptance. With this method of placing the patient in a circuit inductively (and not directly) coupled to the main oscillating circuit, the patient is protected from low frequency electrical shocks and from a possible danger due to burned out condensers.

The spark gaps are firmly secured and well insulated, being mounted on a bakelite base, which in turn is clamped to a wooden frame. There are five gaps with ten cooling vanes to each gap, each vane being 1½ inches in diameter. The separation of the gaps is fixed at a distance which, it is claimed, will give the most efficient action. As the gaps heat, the differential expansion of metals maintains within reasonable limits the electrodes at a fixed distance. The condensers are of mica with copper plates. The milliammeter is a reliable product.

The variocoupler has a fixed primary coil and a moving secondary coil with connections to the patient from the secondary. The secondary coil slides on five brass bars, and contact with the coil is made by a sliding contact on the frame of the secondary coil touching a brass bar. The diathermy current passes through the brass sliding contact. The temperature rise of the transformer comes within allowable limits.

In the test conducted, the frequency varied from 725 to 1,080 kilocycles, which is well within the required range.

In clinics acceptable to the Council, the unit was used over a long period of time and it apparently met all the requirements in the practice of medical diathermy. The firm did not recommend this unit for fever therapy. In other clinics, surgical tests were conducted. The cutting current delivered appeared satisfactory. Figure 2 is a schematic diagram of the circuit.

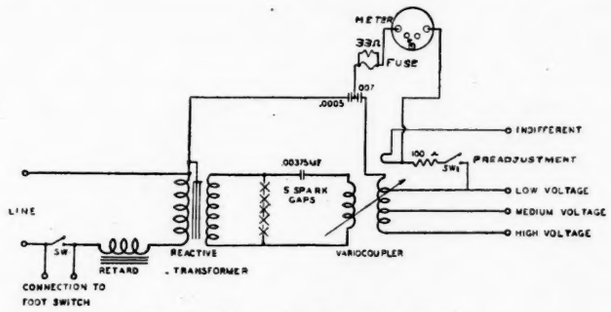


Fig. 2.—Schematic diagram of circuit.

This unit, therefore, is eligible for acceptance and the Council places it on the accepted list for one year.

ALOE COLD RAY QUARTZ ULTRAVIOLET LAMP ACCEPTABLE

The A. S. Aloe Company of St. Louis offers for sale to the profession an ultraviolet generator called the Aloe Cold Ray Quartz Ultraviolet Lamp. The unit consists mainly of a step-up transformer, an automatic time switch, a body grid lamp or an orificial unit both made of transparent tubing and filled with inert gases including a drop or so of mercury. The lamp is of the low pressure mercury vapor type.

The physical and electrical properties of this lamp were investigated in a laboratory acceptable to the Council on Physical Therapy. At a distance of 24 inches directly below the lamp and in the center of the beam, the total intensity of the ultraviolet radiation of wavelengths shorter than and including 3,130 angstroms is 245 microwatts per square centimeter, which, according to calculation, would give a minimum perceptible erythema in 2.2 minutes. According to the dosage chart supplied by the firm, an exposure of three minutes at a distance of 24 inches will produce a second degree or "mild sunburn" reaction, consisting of a "reddening of the skin several hours later, and a subsequent granular exfoliation." The physiologic tests of the Council, therefore, are in agreement with the manufacturer's claim, and from the standpoint of ultraviolet output the lamp complies with the Council's acceptance qualifications. The radiation properties of the orificial model also meet the requirements of the Council. As common with all low pressure mercury vapor quartz glow lamps, most of the ultraviolet radiation is confined in the resonance emission line of mercury vapor at wavelength 2,537 angstroms.

Aloe Cold Ray Quartz Ultraviolet Lamp.

The unit was investigated in clinics acceptable to the Council. The therapeutic claims recorded in the advertising matter are also in agreement with the Council's recently revised report, "Regulations to Govern Advertising of Ultraviolet Generators to the Medical Profession Only."

The Council on Physical Therapy declares the Aloe Cold Ray Quartz Ultraviolet Lamp acceptable for inclusion in the list of accepted devices.

Council on Pharmacy and Chemistry

NEW AND NONOFFICIAL REMEDIES

THE FOLLOWING ADDITIONAL ARTICLES HAVE BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION.

PAUL NICHOLAS LEECH, Secretary.

SOLUTION LIVER EXTRACT CONCENTRATED-LILLY.—A sterile aqueous solution containing the nitrogenous, nonprotein fraction G of Cohn, preserved with 0.5 per cent phenol. Each cubic centimeter contains the active material derived from 33.3 Gm. of fresh liver.

Actions and Uses.—Solution liver extract concentrated-Lilly is proposed for intramuscular injection in the treatment of pernicious anemia. Its potency is such that the injection of 3 cc. per week will maintain the average pernicious anemia patient at normal red blood cell count level. A comparable result may usually be obtained by the ingestion of from 1,400 to 2,100 Gm. of fresh liver weekly.

Dosage.—For the average patient in relapse, 3 cc. is given daily for three successive days, then 3 cc. is given at weekly intervals until sufficient time has elapsed in which to observe the response. Thereafter, either the volume of the dose or the time interval between doses is adjusted according to the individual patient's needs.

Manufactured by Eli Lilly and Co., Indianapolis. U. S. patent applied for. No U. S. trademark.

Ampoules Solution Liver Extract Concentrated-Lilly, 10 cc.: Each cubic centimeter contains the active material derived from 33.3 Gm. of fresh liver.

To prepare solution liver extract concentrated-Lilly, livers from edible animals are ground directly into water and the mixture adjusted to the iso-electric point (approximately *p*H 5 to 6). The mixture is then heated to coagulate protein (approximately 80 C.), stirred for thirty minutes and filtered. The filtrate is reduced in vacuum to a small volume and enough alcohol added to produce a concentration of 70 per cent. The 70 per cent alcohol solution is then chilled, and the resulting precipitate discarded. The filtrate is reduced in vacuum to a small volume, added to several volumes of alcohol, and the precipitate separated therefrom. The precipitate is dissolved in water and filtered. The volume is adjusted so that each cubic centimeter represents material derived from 33.3 Gm. of fresh liver. The solution is sterilized by boiling and then passed through Berkefeld filters; 0.5 per cent phenol is added as a preservative.

REPORTS OF THE COUNCIL

THE COUNCIL HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT.

PAUL NICHOLAS LEECH, Secretary.

BARD PARKER FORMALDEHYDE GERMICIDE OMITTED FROM N. N. R.

Bard-Parker Formaldehyde Germicide (Parker, White and Heyl, Inc., New York) is a mixture of formaldehyde, alcohol, and other undeclared ingredients recommended for use in sterilizing steel surgical instruments and rubber catheters that would be injured by boiling water. It is not recommended by the firm for the sterilization of silk or gum woven catheters, cystoscopes, or other instruments having parts soluble in alcohol or affected by formaldehyde.

In 1929 the Council, after consideration of the product, included it in the list now designated "List of Articles and Brands Accepted by the Council but Not Described in N. N. R." When the period for which the product was accepted expired, at the close of 1932, the Council adopted a report of the referee recommending reacceptance (1) provided the firm submitted acceptable evidence that the solution kills vegetative and spore forms of pathogenic bacteria in the crevices, joints and interiors of the types of instruments for which its use as a sterilizing agent was being recommended, (2) provided the firm declared the *complete* composition of the preparation on the labels and in the advertising, and (3) provided the firm revised its advertising and labels according to the rules and the evidence found to be acceptable.

A statement of the Council's action was transmitted to Parker, White and Heyl, Inc.; since that time the firm has repeatedly expressed willingness to cooperate with the Council. However, although a year has passed, it has not made the product acceptable by meeting the objections raised by the Council. The firm has stated that it has approached university authorities to secure the services of a competent bacteriologist to carry out the tests required by the Council and asked (Oct. 30, 1933) that "the entire matter be held in abeyance pending the completion of such tests." The questions relating to the substantiation of the germicidal claims could be settled within a few weeks by any competent bacteriologist who undertook to carry out the tests, provided he were given the necessary supplies, instruments and material; but no report of any such work has been submitted, although the firm has repeated its expression of desire to cooperate and its request for postponement of the Council's consideration of the product.

Parker, White and Heyl, Inc., has not indicated its willingness to comply fully with the Council's rule that the essential ingredients be declared on the labels and in advertising. The firm wishes to withhold information on a rust-inhibiting substance in this mixture, which may be potassium nitrite, but has offered to give the Council confidential information on this subject. The Council, of course, cannot accept confidential information. In addition, the proportions of formaldehyde, butyl alcohol and ethyl alcohol in the mixture have not been openly declared, although the firm states that it is willing to do so.

In view of the fact that a year of negotiation has not accomplished compliance with fair and reasonable requirements, which have been applied with leniency, and in view further of the fact that the firm's noncompliance would otherwise mean retention in New and Nonofficial Remedies of a semi-secret preparation with unsubstantiated claims, the Council voted to omit Bard-Parker Formaldehyde Germicide from the List of Articles and Brands Accepted by the Council but Not Described in N. N. R.

Committee on Foods

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COMMITTEE ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

RAYMOND HERTWIG, Secretary.

JELKE GOOD LUCK FRENCH DRESSING

Manufacturer.—John F. Jelke Company, Chicago.

Description.—An emulsion of cottonseed oil, distilled vinegar, sucrose, water, spices (paprika, mustard, onion), salt and tragacanth (U. S. P.).

Manufacture.—Formula proportions of the ingredients are thoroughly mixed, homogenized and automatically filled into bottles.

Analysis (submitted by manufacturer).—

	per cent
Moisture	39.6
Total ash	4.0
Sodium chloride	3.8
Fat (ether extract)	35.5
Protein (N × 6.25)	0.6
Reducing sugars as invert sugar	2.1
Sucrose (copper reduction method)	16.0
Crude fiber	0.3
Carbohydrates other than crude fiber (by difference)	18.7
Titratable acidity as acetic acid	1.3
Lipoid phosphoric acid (P_2O_5)	none
Total phosphoric acid (P_2O_5)	trace
Added color	none

Calories.—4.0 per gram; 114 per ounce.

HEINZ STRAINED TOMATOES

Manufacturer.—H. J. Heinz Company, Pittsburgh.

Description.—Strained tomatoes retaining in high degree the natural vitamin and mineral content.

Manufacture.—Specially grown and selected ripe tomatoes are trimmed, washed and scalded; the juice and more tender portions of the pulp are forced through a screen to remove

seeds and coarse fibrous material. The strained material is concentrated to half its original volume by boiling in absence of air and is subjected to a "vacuum," filled into lacquer lined cans, sealed under "vacuum" and processed.

Analysis (submitted by manufacturer).—

	per cent
Moisture	88.0
Total solids	12.0
Ash	1.1
Fat (ether extract)	0.2
Protein (N × 6.25)	2.1
Reducing sugars as invert sugar	7.3
Sucrose (copper reduction method)	0.0
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	8.2
Calcium (Ca)	0.01
Phosphorus (P)	0.03
Iron (Fe)	0.0016
Copper (Cu)	0.00019

Calories.—0.4 per gram; 11 per ounce.

Claims of Manufacturer.—An excellent source of vitamin C, and good in vitamins A and B. Specially intended for infants, children and convalescents and for special smooth diets. Only warming is required for serving.

I. G. A. VEG-ALL FOR SOUPS, SALADS, VEGETABLE DISHES

Distributor.—Independent Grocers Alliance Distributing Company, Chicago.

Packer.—The Larsen Company, Green Bay, Wis.

Description.—Mixture of carrots, potatoes, celery, green beans, cabbage, peas, corn, lima beans, onions, sweet peppers, salt and water prepared by efficient methods for retention in high degree of the natural mineral and vitamin values of the respective vegetables. No added sugar or salt. The same as Larsen's Veg-All "A Magic Garden" for Soups, Salads, Vegetable Dishes (THE JOURNAL, Aug. 12, 1933, page 525).

(*a*) MINNEOPA BRAND GOLDEN SYRUP (85 PER CENT CORN SYRUP, 15 PER CENT REFINERS' SYRUP)

(*b*) MINNEOPA BRAND CRYSTAL WHITE SYRUP (85 PER CENT CORN SYRUP, 15 PER CENT GRANULATED SUGAR SYRUP)

Distributor.—L. Patterson Mercantile Company, Mankato, Minn.

Packer.—Penick and Ford Sales Company, Cedar Rapids, Iowa.

Description.—(*a*) The same as Penick Golden Syrup (Corn Syrup and Sugar Refiners' Syrup), THE JOURNAL, April 2, 1932, page 1159.

(*b*) The same as Penick Crystal White Syrup (Corn and Cane Sugar Syrups), THE JOURNAL, April 9, 1932, page 1268.

Claims of Manufacturer.—Recommended for use as an easily digestible and readily assimilable carbohydrate supplement to milk in infant feeding and as a syrup for cooking, baking and the table.

OSCAR MAYER'S APPROVED BRAND LIVER SAUSAGE
OSCAR MAYER'S BRAUNSCHWEIGER STYLE LIVER SAUSAGE

Manufacturer.—Oscar Mayer and Company, Inc., Chicago.

Description.—Cooked and smoked sausage containing United States government inspected and passed ground pork livers and muscle, ground pork skin, powdered skim milk, onions, salt, pepper, mace, and annato color.

Manufacture.—Pork skins are cooked for two hours at 88 C., drained, ground and chopped with formula proportions of fresh pork livers and lean pork muscle (United States Government Inspected and Passed), dried milk, onions and spices. The sausage meat is stuffed into hog casings of 30 inch lengths, which are tied off and cooked in water containing annato color at 75 C. until the internal temperature of the sausage reaches 68 C., well above that (58 C.) required to kill trichinae. After chilling, the sausage is smoked for four hours at 40 C., branded, and individually wrapped or packed in solid fiber boxes. The manufacture is under government inspection.

Analysis (submitted by manufacturer).—

	per cent
Moisture	57.9
Ash	3.1
Fat (ether extract)	20.8
Protein (N × 6.25)	14.9
Starch (acid hydrolysis method)	0.5
Reducing sugars as invert sugar	1.9
Sucrose (copper reduction method)	0.7
Carbohydrates (by difference)	3.3

Calories.—2.6 per gram; 74 per ounce.

Claims of Manufacturer.—United States government inspected and passed.

CURDOLAC COMPANY BRAN, SOYA BEAN, INDIA GUM BREAKFAST PREPARATION

(ADDED SALT, BAKING SODA; SWEETENED WITH SACCHARIN AND FLAVORED)

Manufacturer.—Curdolac Food Company, Waukesha, Wis.

Description.—Short strands of a preparation of starch free wheat bran, roasted soy bean, India gum, sodium chloride, sodium bicarbonate; sweetened with saccharin and flavored with cassia extract and vanilla.

Manufacture.—Thrice ground Minnesota bran is treated with diastase to convert the starch to soluble carbohydrates, is washed with water, and dried. Cleaned soy beans are roasted to the desired flavor and ground. Definite proportions of washed bran, roasted soy bean flour, India gum, salt and sodium bicarbonate are mixed; water, saccharin and flavoring are added. The dough mass is run through a mill to form strands, which are spread on baking sheets, dried, and packed in cartons.

Analysis (submitted by manufacturer).—

	per cent
Moisture	2.0
Ash	8.0
Fat (ether extraction method)	5.3
Protein (N × 6.25)	15.2
Crude fiber	17.9
*Available carbohydrates	3.6
*Nonavailable carbohydrates other than crude fiber (by difference)	48.0
Saccharin	0.0006

* Estimated from composition of ingredients and formula.

Calories.—1.1 per gram; 31 per ounce.

Claims of Manufacturer.—"Special purpose food" for diets low in carbohydrates. Provides bulk. Use under the directions of a physician.

LIGHT'S OVEN-PERFECT BISCUIT FLOUR. READY MIXED

Manufacturer.—The Light Grain and Milling Company, Liberal, Kan.

Description.—Biscuit flour containing bleached hard winter wheat short patent flour, hydrogenated cottonseed oil, skim milk, sucrose, sodium chloride, sodium bicarbonate, sodium acid pyrophosphate, and calcium acid phosphate.

Manufacture.—The ingredients are mixed in definite proportions in a batch mixer and automatically packed in wax paper lined cartons.

Analysis (submitted by manufacturer).—

	per cent
Moisture	8.5
Ash	4.6
Fat (ether extraction method)	12.0
Protein (N × 5.7)	9.5
Reducing sugars as invert sugar	0.5
Sucrose (copper reduction method)	3.8
Crude fiber	0.4
Carbohydrates other than crude fiber (by difference)	65.0

Calories.—4.1 per gram; 116 per ounce.

LIGHT'S BEST OVEN PERFECT FLOUR; SELF-RISING (BLEACHED)

Manufacturer.—The Light Grain and Milling Company, Liberal, Kan.

Description.—Self-rising flour prepared from bleached hard winter wheat standard patent flour, sodium chloride, calcium acid phosphate and sodium bicarbonate.

Manufacture.—The ingredients are mixed in definite proportions in a batch mixer and automatically packed in cotton bags. The flour is bleached with nitrogen trichloride (one-seventh ounce per barrel).

MEDICAL LICENSURE STATISTICS FOR 1933

ANNUAL PRESENTATION OF LICENSURE STATISTICS BY THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS OF THE AMERICAN MEDICAL ASSOCIATION

The report herewith presented for the year 1933 deals with statistics regarding (*a*) medical licensing boards of the United States, including the District of Columbia and the territories and possessions of the United States, (*b*) basic science boards, and (*c*) the National Board of Medical Examiners. In the publication of these statistics, the endeavor has been to show the actual facts, a knowledge of which is always beneficial. The information should be of service to medical schools and licensing boards as well as to the public.

Official reports have been contributed by the officers of the medical licensing boards of all states, the District of Columbia, Alaska, the Canal Zone, Hawaii and Puerto Rico, three homeopathic boards (Connecticut, Delaware and Maryland), the eclectic board of Arkansas, the seven basic science boards in operation during 1933 (Arkansas, Connecticut, the District of Columbia, Minnesota, Nebraska, Washington and Wisconsin), and the National Board of Medical Examiners. Every effort has been made to insure accuracy. The officers of these boards deserve much praise for the completion of their reports, and acknowledgment is here made of their splendid cooperation. The officers of these boards also rendered the Association invaluable assistance in other respects by which we are continually able to improve the biographic records.

The tables showing medical licensing board results include figures regarding the number of candidates examined in 1933 for medical licensure, the number licensed and the number added to the profession.

LICENTIATES

Table 1 gives the actual number of licenses issued in the various states, territories and possessions during the year. There were 5,174 licensed on the basis of examination and 1,951 by endorsement of credentials. In several states (table 5) the internship is a requisite for licensure, but a physician is permitted to take the examination, his license being withheld. This is particularly true in Iowa and Michigan. Licenses are also withheld for lack of citizenship, fees or other minor technicalities. In consequence these are omitted in recording the number licensed. The figures, therefore, for those licensed after examination include many who were examined in 1932 and even a few in previous years. New York issued the largest number of licenses, 1,054; Pennsylvania issued 507, Illinois 460, California 417, Ohio 369 and New Jersey 309. All other states licensed fewer than 300. Only one physician was licensed after examination in Nevada, and New Mexico registered none by this method. Florida grants licenses only on the basis of examination. Massachusetts and Rhode Island have no reciprocity privileges but endorse diplomates of the National Board of Medical Examiners. A total of 7,125 licenses were awarded. This figure, however, does not represent 7,125 individuals, since several have been licensed in more than one state during the year. Table 4 shows how many of those licensed were never before registered and, therefore, represent the number added to the medical profession.

TOTAL EXAMINED

Table 2 gives the results (passed and failed) for all candidates who took examinations in 1933. There were 5,658 examined, of whom 5,229 passed and 429 failed. These came from 67 approved medical schools in the United States and 9 in Canada, 59 medical schools of other countries, 14 medical schools now extinct, 7 unapproved institutions and several osteopathic colleges. These statistics contain figures regarding only those osteopaths granted the privilege to practice medicine, surgery or both by the medical board. There were 5,040 graduates of approved medical schools in the United States examined, of whom 3.3 per cent failed; 122 Canadian graduates, 15.6 per cent of whom failed; 203 foreign graduates with 36.5 per cent failures; 16 who graduated from schools now extinct, with 50.0 per cent of failures, and 277 from unapproved and osteopathic schools, of whom 58.8 per cent failed. Of these 277, 82 were graduates of osteo-

(CONTINUED ON PAGE 1388)

TABLE 1.—*Licentiates—1933*

	Licensed on Basis of		
	Examination	Reciprocity and Endorsement	Total
Alabama	11	28	39
Arizona	9	18	27
Arkansas	43	16	59
California	294	123	417
Colorado	60	23	83
Connecticut	70	59	129
Delaware	18	10	28
District of Columbia	38	17	55
Florida	80	0	80
Georgia	87	20	107
Idaho	5	6	11
Illinois	374	86	460
Indiana	115	27	142
Iowa	106	42	148
Kansas	80	23	103
Kentucky	65	39	104
Louisiana	95	16	111
Maine	34	18	52
Maryland	165	27	192
Massachusetts	189	85	274
Michigan	202	49	251
Minnesota	126	15	141
Mississippi	23	18	41
Missouri	214	46	260
Montana	8	9	17
Nebraska	67	14	81
Nevada	1	13	14
New Hampshire	10	15	25
New Jersey	153	156	309
New Mexico	0	24	24
New York	747	307	1,054
North Carolina	65	50	115
North Dakota	14	1	15
Ohio	277	92	369
Oklahoma	10	21	31
Oregon	39	22	61
Pennsylvania	456	51	507
Rhode Island	42	6	48
South Carolina	38	4	42
South Dakota	14	10	24
Tennessee	155	25	180
Texas	166	118	284
Utah	22	13	35
Vermont	27	4	31
Virginia	146	32	178
Washington	38	29	67
West Virginia	30	36	66
Wisconsin	115	69	184
Wyoming	2	10	12
U. S. Territories and Possessions*	29	9	38
Totals	5,174	1,951	7,125

* Alaska, Canal Zone, Hawaii, Puerto Rico and Philippine Islands (not complete).

Marginal Number	SCHOOL	1 Alabama P	F	2 Arizona P	F	3 Arkansas P	F	4 California P	F	5 Colorado P	F	6 Connecticut P	F	7 Delaware P	F	8 Dist. Columbia P	F	9 Florida P	F	10 Georgia P	F	11 Idaho P	F	12 Illinois P	F	13 Indiana P	F	14 Iowa P	F	15 Kansas P	F	16 Kentucky P	F	17 Louisiana P	F	18 Maine P	F	19 Maryland P	F	20 Massachusetts P	F	21 Michigan P	F	22 Minnesota P	F	Marginal Number
	ARKANSAS																																													
1	University of Arkansas School of Medicine					40	1											1	0									1	0																	1
	CALIFORNIA																																													
2	College of Medical Evangelists							42	1	1	0							2	0									1	0							1	0	1	0			1	0	2
3	Stanford University School of Medicine							44	0																																					3
4	University of California Medical School							51	0																			1	0													1	0	4
5	University of Southern California School of Med.							6	0																																	1	0	5
	COLORADO																																													
6	University of Colorado School of Medicine							7	0	38	0																																			6
	CONNECTICUT																																													
7	Yale University School of Medicine							2	0			8	0	1	0	1	0	1	0	1	0																	2	0	3	0	1	0			7
	DISTRICT OF COLUMBIA																																													
8	George Washington University School of Medicine							3	0			1	0	1	0	14	0																					6	0							8
9	Georgetown University School of Medicine							1	0			9	5	3	0	11	0	1	0																	1	0	1	0	37	0	3	5			9
10	Howard University College of Medicine							1	0			1	0			3	1	2	0	3	1			0	2					4	0							9	1			1	0			10
	GEORGIA																																													
11	Emory University School of Medicine																	2	0	4	0															1	0			1	0	2	0			11
12	University of Georgia School of Medicine																	5	0	3	8																									12
	ILLINOIS																																													
13	Loyola University School of Medicine							3	0			1	0					4	0					78	0					1	0											8	0			13
14	Northwestern University Medical School							20	1	4	0							1	0			2	0	56	0	2	0	2	0	2	0			2	0					1	0	4	0	5	0	14
15	University of Chicago, Rush Medical College	1	0	1	0			16	0									1	0	1	0	1	0	57	0	5	0	1	0									3	0	7	0	4	0	15
16	University of Chicago, The School of Medicine of the Division of the Biological Sciences																							8	0	1	0	1	0									1	0	1	0	1	0			16
17	University of Illinois College of Medicine							6	1									1	0					103	1			1	0	1	0			1	0									17
	INDIANA																																													
18	Indiana University School of Medicine							1	0	1	0							2	0							98	4																	1	0	18
	IOWA																																													
19	State University of Iowa College of Medicine							1	0	1	0											1	0	1	0			91	0											2	0			1	0	19
	KANSAS																																													
20	University of Kansas School of Medicine			1	1			1	0									1	0									1	0	53	0			1	0					1	0					20
	KENTUCKY																																													
21	University of Louisville School of Medicine	1	0					1	0	1	0							2	1	1	0					2	1							60	0	1	0							21
	LOUISIANA																																													
22	Louisiana State University Medical Center																																	24	0											22
23	Tulane University of Louisiana School of Medicine	7	0					2	0									13	0							1	0							67	0			1	0	1	0			2	0	23
	MARYLAND																																													
24	Johns Hopkins University School of Medicine							1	0			2	0			1	0	2	0																	1	0			43	0	2	0			3	0	34
25	University of Maryland School of Medicine and College of Physicians and Surgeons											2	0			1	0	3	0																			39	0	0	1					25
	MASSACHUSETTS																																													
26	Boston University School of Medicine											3	0											1	0									10	0			18	1							26
27	Harvard University Medical School			1	0			6	0									2	0									1	0	1	0	1	0	1	0	6	0			17	1	1	0	2	0	27
28	Tufts College Medical School											13	0																					7	0			50	7							28
	MICHIGAN																																													
29	University of Michigan Medical School			1	0			5	0			2	0					1	0					0	1					2	0							1	0	11	3	0				29
30	Wayne University, College of Medicine																																										45	0			30
	MINNESOTA																																													
31	University of Minnesota Medical School							3	0							1	0							8	1	2	0	1	0					1	0					1	0			78	1	31
	MISSOURI																																													
32	St. Louis University School of Medicine			2	0			6	0	2	0	1	1											1	0					2	0									1	0	1	0			32
33	Washington University School of Medicine							4	0															2	0	1	0			3	0							1	0					1	0	33
	NEBRASKA																																													
34	Creighton University School of Medicine							8	0															1	0			4	0	3	0			1	0									1	0	34
35	University of Nebraska College of Medicine							2	0									1	0					2	0			1	0	3	0							3	0					5	0	35
	NEW YORK																																													
36	Albany Medical College																																													36
37	Columbia University Coll. of Physicians and Surgs.																			1	0																							1	0	37
38	Cornell University Medical College							4	0																											1	0					1	0			38
39	Long Island College of Medicine									2	0					1	1							1	0											1	0			1	0					39
40	New York Homeo. Med. Coll. and Flower Hospital							2	0																																					40
41	New York University, University and Bellevue Hospital Medical College									2	0							1	0																							1	0			41
42	Syracuse University College of Medicine																							1	0																					42
43	University of Buffalo School of Medicine																																									3	0	1	0	1	0	43
44	University of Rochester School of Medicine							1	0			2	0																							1	0	1	0	1	0					44
	NORTH CAROLINA																																													
45	Duke University School of Medicine																																					2	0							45
	OHIO																																													
46	Ohio State University College of Medicine																													1	0							1	0			1	0	46
47	University of Cincinnati College of Medicine							1	0							1	0																	1	0	1	0					2	0	47
48	Western Reserve University School of Medicine																	1	0					1	0																	1	0			48
	OKLAHOMA																																													
49	University of Oklahoma School of Medicine							1	0							1	0																	1	0									49
	OREGON																																													
50	University of Oregon Medical School					10	0													1	0															1	0	1	0							50
	PENNSYLVANIA																																													
51	Hahnemann Medical College and Hospital of Phila.							0	1					4	0																			2	0	6	0	2	3					51
52	Jefferson Medical College of Philadelphia			1	0			1	0			5	1	1	0			4	0																			1	1					52
53	Temple University School of Medicine							8	0	1	0													1	0					1	0							1	0	1	0	1	0	2	0	53
54	University of Pennsylvania School of Medicine							2	0			1	0	4	0			4	0															1	0	1	0			1	0			1	0	54
55	University of Pittsburgh School of Medicine																	1	0																											55
56	Woman's Medical College of Pennsylvania					1	0	1	0					1	0																											1	0			56
	SOUTH CAROLINA																																													
57	Medical College of the State of South Carolina																	3	0					1	0															1	0					57
	TENNESSEE																																													
58	Meharry Medical College											1	0					1	0	1	0							4	0			4	0			2	0	0	1					58
59	University of Tennessee College of Medicine	1	0	1	0	1	0	1	0			1	0					5	0															3	0					1	0					59
60	Vanderbilt University School of Medicine							1	0									2	0													1	0	1	0					1	0					60
		1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22																							

P = Passed; F = Failed.

| Marginal Number | Mississippi | | Missouri | | Montana | | Nebraska | | Nevada | | New Hampshire | | New Jersey | | New Mexico | | New York | | North Carolina | | North Dakota | | Ohio | | Oklahoma | | Oregon | | Pennsylvania | | Rhode Island | | South Carolina | | South Dakota | | Tennessee | | Texas | | Utah | | Vermont | | Virginia | | Washington | | West Virginia | | Wisconsin | | Wyoming | | U. S. Territories and Possessions* | | Totals | Examined—Passed | Examined—Failed | Percentage Failed | No. Boards Examined by | Marginal Number |
|---|---|---

Marginal Number	SCHOOL	1 Alabama P	F	2 Arizona P	F	3 Arkansas P	F	4 California P	F	5 Colorado P	F	6 Connecticut P	F	7 Delaware P	F	8 Dist. Columbia P	F	9 Florida P	F	10 Georgia P	F	11 Idaho P	F	12 Illinois P	F	13 Indiana P	F	14 Iowa P	F	15 Kansas P	F	16 Kentucky P	F	17 Louisiana P	F	18 Maine P	F	19 Maryland P	F	20 Massachusetts P	F	21 Michigan P	F	22 Minnesota P	F	Marginal Number
	TEXAS																																													
61	Baylor University College of Medicine							1	0																									1	0									1	0			61
62	University of Texas School of Medicine							1	0																									1	0											62
	VERMONT																																													
63	University of Vermont College of Medicine											1	1																													3	1					63
	VIRGINIA																																													
64	Medical College of Virginia	1	0											1	0	1	0	2	0	1	0																			1	0	0	1					64
65	University of Virginia Department of Medicine															3	0	2	0															1	0					1	0	2	0			2	0	65
	WISCONSIN																																													
66	Marquette University School of Medicine							1	0															2	0																	1	0			1	0	66
67	University of Wisconsin Medical School							3	0					1	0									1	0	1	0			1	0			1	0					1	0			2	0	67
	CANADA																																													
68	Dalhousie University Faculty of Medicine																																													68
69	Laval University Faculty of Medicine											0	1																											0	1	0	2					69
70	McGill University Faculty of Medicine			1	0			6	0	2	0	3	0					1	0					0	1											3	0			4	0	1	0			70
71	Queen's University Faculty of Medicine											0	1															1	0															1	0	71
72	University of Alberta Faculty of Medicine																																											1	0	72
73	University of Manitoba Faculty of Medicine																																										2	0	73
74	University of Montreal Faculty of Medicine							0	1			0	1																													0	3					74
75	University of Toronto Faculty of Medicine							1	0									1	0					1	0			1	0					1	0	1	0			1	0			2	0	75
76	University of Western Ontario Medical School																																										4	0			76
77	Foreign Medical Faculties					1	0	5	5	1	0					1	0	2	0					8	2	1	0	1	0					1	0	1	0	4	0	1	5			2	0	77
78	Extinct Medical Schools							0	2									3	1					1	0			0	1											1	0					78
79	Unapproved Schools					1	0	0	1	8	0	2	4	0	1									38	7																	53	145					79
80	Totals	11	10	45		307		60		78		19		40		83		89		5		383		120		111		80		66		119		35		167		366		194		127		80
81	Totals—Examined—Passed	11		9		44		294		60		63		18		39		80		88		5		369		114		110		80		66		119		35		165		189		194		126		81
82	Totals—Examined—Failed	0		1		1		13		0		15		1		1		3		1		0		14		6		1		0		0		0		0		2		177		0		1		82
83	Percentage Failed	0.0		10.0		2.2		4.2		0.0		19.2		5.3		2.5		3.6		1.1		0.0		3.7		5.0		0.9		0.0		0.0		0.0		0.0		1.2		48.4		0.0		0.8		83
		1		2		3		4		5		6		7		8		9		10		11		12		13		14		15		16		17		18		19		20		21		22		

P = Passed; F = Failed.

(CONTINUED FROM PAGE 1385)

pathic schools, of whom 35 passed and 47, 57.3 per cent, failed, and 195 were graduates of unapproved schools, of whom 79 passed, and 116, 59.5 per cent, failed. Graduates of osteopathic schools were examined in Colorado, Connecticut, Massachusetts, Texas and Wisconsin, while graduates of unapproved schools were examined in Arkansas (eclectic board), California, Delaware, Illinois, Massachusetts, Tennessee, Washington and Hawaii. Massachusetts licensed 53 and Illinois 38 of these practitioners.

The largest number of graduates of any one school represented was from Georgetown University School of Medicine, 166, which also had the highest number of failures, 22. These graduates were examined in 18 states. The University of Michigan Medical School had 152 graduates before 14 licensing boards, of whom 3 failed. The next highest number of graduates of any one school was Rush Medical College, which had 146 graduates examined in 26 states, of whom 2 failed. Graduates of Northwestern University Medical School and Rush Medical College were examined in 27 and 26 states, respectively. From these statistics one might infer that these schools educate more nonresidents than do other schools. Harvard University Medical School graduates were examined in 22 states and the University of Pennsylvania School of Medicine graduates in 23.

The one eclectic board in existence, in Arkansas, examined and licensed one candidate. The office of the state comptroller is at present conducting an investigation into the allegedly fraudulent issuance of licenses in Arkansas to eclectic doctors during past years. It is to be hoped that the desired results will be obtained.

Two of the five homeopathic boards in existence, Delaware and Maryland, examined ten candidates, all of whom passed.

In 1932, 5,663 were examined, of whom 5,235 passed and 7.6 per cent failed as compared with 5,658 examined in 1933, of whom 5,229 passed and 7.6 per cent failed. The figures, in general, compare equally with other years.

REGISTRATION BY RECIPROCITY AND ENDORSEMENT

The number of physicians granted licenses to practice medicine and surgery without examination are given in table 3. There were 1,927 so registered who presented licenses from other states, Canada or foreign countries, the certificate of the National Board of Medical Examiners, one of the government services, or were registered on the basis of diplomas from foreign faculties of medicine.

In an increasing number of states the boards now accept a physician's credentials, if satisfactory, whether or not the state board issuing the original license returns the favor. The following 29 states and the District of Columbia generally will register, without examination, licentiates who present satisfactory evidence of good moral character and practice record, and, in addition thereto, credentials which correspond to those required by their respective states at the time such licenses were issued:

Alabama	Maine	North Carolina
Arizona	Maryland	Oklahoma
California	Michigan	Oregon
Colorado	Minnesota	Pennsylvania
Connecticut	Missouri	South Carolina
Delaware	Nebraska	South Dakota
District of Columbia	Nevada	Texas
Georgia	New Hampshire	Utah
Idaho	New Jersey	Vermont
Illinois	New Mexico	Wisconsin

California (when ten or more years has intervened), Connecticut, Illinois, Minnesota and South Dakota require a practical or oral examination of reciprocity candidates, before a license is granted by this means. Applicants in Idaho are required to pass either a

| Marginal Number | Mississippi | | Missouri | | Montana | | Nebraska | | Nevada | | New Hampshire | | New Jersey | | New Mexico | | New York | | North Carolina | | North Dakota | | Ohio | | Oklahoma | | Oregon | | Pennsylvania | | Rhode Island | | South Carolina | | South Dakota | | Tennessee | | Texas | | Utah | | Vermont | | Virginia | | Washington | | West Virginia | | Wisconsin | | Wyoming | | U. S. Territories and Possessions* | | Totals | Examined—Passed | Examined—Failed | Percentage Failed | No. Boards Examined by | Marginal Number |
|---|---|---

TABLE 3.—*Physicians Licensed by Reciprocity and Endorsement—1933*

Marginal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54
	Total Licensed	Alabama	Arizona	Arkansas	California	Colorado	Connecticut	Delaware	Dist. Columbia	Florida	Georgia	Idaho	Illinois	Indiana	Iowa	Kansas	Kentucky	Louisiana	Maine	Maryland	Massachusetts	Michigan	Minnesota	Mississippi	Missouri	Montana	Nebraska	Nevada	New Hampshire	New Jersey	New Mexico	New York	North Carolina	North Dakota	Ohio	Oklahoma	Oregon	Pennsylvania	Rhode Island	South Carolina	South Dakota	Tennessee	Texas	Utah	Vermont	Virginia	Washington	West Virginia	Wisconsin	Wyoming	U. S. Govt. Services	Nat. Bd. of Med. Ex.	Alaska, Hawaii and Puerto Rico	Canada and Foreign	Special Exemption
Alabama	28	..	..	..	..	1	..	..	..	..	2	..	1	..	1	..	..	5	..	2	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	5	..	..	..	4	..	..	..	..	..	4	..	..	..
Arizona	18	..	..	..	..	..	..	..	..	..	..	..	3	..	1	1	2	..	..	..	1	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	3	..	1	..
Arkansas	16	..	..	..	1	1	..	..	..	..	..	..	1	1	1	2	..	1	..	..	..	..	..	1	1	..	..	..	..	..	..	..	1	..	..	..	..	1	1	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..
California	123	..	1	1	..	4	..	..	..	..	..	..	7	4	3	1	..	..	..	2	2	8	7	2	4	2	5	..	..	..	..	4	..	2	11	1	7	1	..	..	1	6	1	4	..	1	4	2	..	..	15	9	1	..	..
Colorado	23	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	1	..	1	1	3	1	..	1	..	3	..	..	..	..	1	..	..	..	1	..	..	..	..	..	1	1	..	..	..	..	2	..	..	2	..	1	..
Connecticut	59	..	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	3	2	2	..	..	..	..	..	..	..	..	..	14	..	..	2	..	..	..	..	..	1	..	..	..	..	..	..	..	2	..	..	2	..	1	..
Delaware	10	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	3	..	..	..	..	..	29	..	..	..
Dist. of Columbia	16	..	..	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	3	..	1	..	..	..	1	..	..	..	..	..	2	..	..	..	..	..	6	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	.
Florida	0	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	4	..	1	..	..	..	..	..	..	..
Georgia	20	2	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	..	4	..	2	1	..	3	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Idaho	6	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	2	..	..	1	..	..	..	..	..	1	..	..	..
Illinois	86	..	..	1	5	1	..	..	..	..	..	..	..	6	1	2	..	1	2	..	8	7	..	14	..	..	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..	..	..
Indiana	27	..	..	2	2	..	..	..	..	..	1	..	..	2	..	5	..	..	..	..	2	..	..	2	..	1	..	..	..	..	2	..	..	..	..	..	1	..	..	..	2	1	..	..	..	..	..	3	..	2	26	..	..	..
Iowa	42	..	..	1	..	..	..	..	..	..	1	..	14	1	..	..	..	..	..	..	..	..	..	2	..	1	..	..	..	..	2	..	..	..	4	..	..	1	..	..	..	1	1	1	..	..	..	..	..	..	..	..	..	..
Kansas	23	..	..	..	..	..	..	..	..	..	..	..	4	..	3	..	1	1	..	..	..	1	..	..	6	..	..	..	..	1	..	..	..	..	2	2	..	..	..	..	2	1	2	..	..	1	..	..	3	..	..	1	..	..	..
Kentucky	39	1	..	1	..	..	..	..	..	..	1	..	4	..	..	..	..	..	..	..	3	1	1	..	..	..	..	..	..	..	..	..	..	..	7	1	..	1	..	..	..	9	1	..	..	2	..	2	..	..	..	4	..	..	..
Louisiana	16	3	..	..	..	..	..	..	..	..	2	..	1	..	1	..	..	..	3	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	3	..	..	..	..	..	..	..	..	..	..	..	..
Maine	18	..	..	..	..	..	1	..	2	..	..	..	..	..	1	..	..	..	..	4	..	1	..	..	..	..	..	..	1	1	..	1	..	..	2	1	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..
Maryland	27	..	..	..	..	..	..	..	1	..	2	..	..	1	1	1	..	..	..	..	1	..	..	1	..	..	..	..	..	..	2	2	..	3	..	..	3	..	1	..	..	..	..	..	2	..	..	1	..	..	5	..	..	..
Massachusetts	85	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	85	..	..	..
Michigan	49	..	..	..	4	1	..	..	..	..	..	11	2	2	..	..	..	1	3	1	..	2	..	2	..	2	..	..	1	..	1	..	1	5	1	..	3	..	..	1	1	1	..	..	..	..	2	..	..	..	..	1	..	..
Minnesota	15	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	3	..	..	..	..	1	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	..	..	1	..	..
Mississippi	18	2	..	1	..	..	..	..	..	..	1	..	..	..	..	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	2	..	..	6	..	..	..
Missouri	46	..	..	1	..	..	..	..	..	..	..	4	1	..	7	..	2	..	1	..	1	2	1	..	..	1	..	..	..	..	1	..	..	1	3	..	1	..	..	..	7	3	..	..	..	..	..	..	..	..	1	..	..	..
Montana	9	..	..	..	2	..	..	..	..	..	..	..	..	..	1	..	..	..	3	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	9	..	..	..
Nebraska	14	..	..	2	..	..	..	..	..	..	..	2	..	1	2	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..
Nevada	13	..	..	..	7	..	..	..	..	..	..	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	1	..	..	1	..	..	..
New Hampshire	15	..	..	..	..	1	..	..	1	..	..	..	..	..	..	..	..	..	..	..	3	1	..	..	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
New Jersey	156	1	..	..	1	1	1	1	..	..	3	..	3	1	2	2	..	..	..	7	1	6	2	2	4	..	1	..	..	..	..	65	4	..	2	..	..	15	..	..	..	1	2	..	1	7	..	1	..	..	3	1	..	..
New Mexico	24	..	..	1	..	..	..	..	..	..	..	5	2	..	1	..	1	..	1	..	..	..	..	1	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	19	..	..	..
New York	307	1	..	..	6	..	2	..	1	..	5	..	4	5	11	1	3	1	..	37	10	4	2	1	1	..	..	..	1	9	..	..	5	..	11	..	..	6	..	..	..	1	..	7	..	..	..	..	..	..	1	..	1	..
North Carolina	50	1	..	..	..	..	..	..	..	..	4	..	1	..	..	..	2	1	..	2	1	2	1	..	3	..	..	..	..	..	..	5	..	..	2	..	..	1	..	8	..	8	..	..	..	..	3	..	..	2	..	..	108	1	17	16
North Dakota	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	.	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Ohio	92	..	..	1	..	3	..	..	..	..	3	..	3	4	..	1	6	2	..	7	..	14	..	1	14	..	..	..	..	1	..	4	..	..	..	..	7	..	..	..	5	..	..	..	1	..	7	..	..	..	7	1	..	..
Oklahoma	21	..	..	2	1	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	1	3	1	1	..	..	..	..	..	..	..	1	..	2	..	..	..	..	..	4	4	..	..	..	..	..	..	..	..	..	..	..	..
Oregon	22	..	..	..	4	..	..	..	..	..	..	2	..	..	..	..	1	..	..	..	2	1	..	1	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Pennsylvania	51	..	..	..	..	..	..	..	2	..	..	2	2	..	..	1	1	1	1	2	3	2	..	1	..	..	..	..	8	..	4	1	..	3	..	..	1	..	..	..	..	..	1	..	..	..	..	..	..	..	8	..	..	..
Rhode Island	6	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	15	..	..	..
South Carolina	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	6	..	..	..
South Dakota	10	..	..	..	..	..	..	..	..	..	..	..	..	1	..	1	..	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..
Tennessee	24	..	..	1	..	..	..	..	..	..	2	..	2	..	2	..	2	1	..	1	..	..	1	4	1	..	1	..	..	..	..	1	1	..	2	..	..	..	..	..	..	..	1	..	..	..	..	..	1	..	2	..	..	..
Texas	105	4	1	6	4	1	..	..	1	..	3	..	5	..	1	2	3	12	1	1	1	2	2	3	10	..	1	..	..	..	..	3	1	..	1	4	1	3	..	..	..	19	..	..	..	3	..	1	4	..	1	..	..	..	..
Utah	13	..	..	..	3	..	..	..	..	..	..	1	..	1	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	1	..	..	..	..	..	2	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Vermont	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..
Virginia	32	..	..	..	..	..	..	..	1	..	1	..	..	..	..	1	2	1	..	6	..	1	1	..	..	..	..	..	..	..	..	..	6	..	..	..	1	..	..	..	..	2	..	..	..	..	..	..	..	..	2	..	..	..
Washington	29	..	..	..	2	4	..	..	..	..	..	..	..	2	..	..	..	..	..	..	..	2	..	1	1	1	..	..	..	..	..	..	..	..	..	4	1	..	..	1	..	..	1	..	..	..	3	..	..	..	1	5	..	..	..
West Virginia	36	..	..	1	..	..	..	..	1	..	3	..	1	..	..	..	2	1	1	2	..	..	1	..	1	..	1	..	..	..	..	..	2	..	2	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	1	8	..	..	..
Wisconsin	60	..	..	..	..	2	..	..	..	..	1	..	14	1	5	1	..	..	1	1	..	6	6	..	8	..	2	1	..	..	..	1	..	1	4	1	..	1	..	..	..	4	1	..	..	12	..	..	..	..	..	1	..	..	..
Wyoming	10	..	..	..	..	1	..	..	..	..	..	..	1	1	..	..	..	..	..	..	..	..	..	2	..	4	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	3	..	..	..
Alaska, Hawaii and Puerto Rico	9	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	..	..	..	..	..	..	..	..	..	1	..	..	..	..	7	..	..	..
Totals	1,927	15	2	22	43	23	4	2	11	0	36	0	100	26	52	26	36	37	6	98	25	86	46	19	89	4	38	1	3	21	0	119	25	4	74	16	14	64	2	11	6	106	34	11	6	61	8	19	23	2	19	391	5	20	16
Marginal No.	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47	48	49	50	51	52	53	54

became effective. In chart 1 the same information is presented graphically.

COMPARISON WITH OTHER YEARS

In table 7 are listed the numbers of candidates examined in the various states, territories and possessions in the past five years, showing those who passed and failed. In this period New York examined 4,012 candidates, Pennsylvania 2,153, Illinois 1,863, California 1,480, Ohio 1,317, Michigan 1,241, and Massachusetts 1,053. All others examined less than 1,000. The smallest number (5) were examined in New Mexico. The percentage of candidates who failed in the examinations in the last five years is given in the last column. The proportion of failures in all the states has increased from 6.2 per cent in 1929 to 6.6 per cent in 1933. In the five year period, 35.3 per cent of the applicants failed in Massachusetts and 26.7 per cent in Nevada, followed by New York with 15.3 per cent, Connecticut 12.2 per cent, and North Dakota 10.6 per cent. On the other hand, Kansas, Montana, Nebraska, New Hampshire, New Mexico, Oklahoma, South Carolina, South Dakota and Utah reported no failures, while Arkansas, Georgia, Iowa, Louisiana, Michigan, Minnesota, Missouri, Tennessee, Texas and Vermont had less than 1 per cent of failures. A total of 28,115 candidates were examined in the five years from 1929 to 1933 inclusive, of whom 26,247 passed and 1,868 failed. These figures represent examinations given and not individuals. A candidate who fails more than once in a given year has not been counted twice, but should he fail in one of the succeeding years he is counted in that year also. Likewise, if a candidate fails and later passes, whether in the same or a later year, he is counted as passed and failed. With a total of 1,868 failures for the five year period, it seems likely that there were approximately 25,000 individuals examined. It is to be assumed that the majority of those who fail are later reexamined and licensed in some state. This figure, therefore, indicates a fair estimate of the number of physicians added to the profession each year. Table 4 gives exact totals on this point for the year 1933 and this study will be continued.

TABLE 4.—*Licentiates Representing Additions to the Medical Profession in 1933*

	Examination	Endorsement[1]	Total
Alabama	10	3	13
Arizona	2	1	3
Arkansas	42	..	42
California	264	11	275
Colorado	57	..	57
Connecticut	70*	26	96
Delaware	14	..	14
District of Columbia	21	..	21
Florida	22	..	22
Georgia	81	..	81
Idaho	2	..	2
Illinois	374*	20	394
Indiana	109	..	109
Iowa	106*	..	106
Kansas	77	..	77
Kentucky	65	3	68
Louisiana	76	..	76
Maine	26	..	26
Maryland	159	5	164
Massachusetts	145	67	212
Michigan	202*	..	202
Minnesota	95	4	99
Mississippi	18	..	18
Missouri	202	3	205
Montana	2	..	2
Nebraska	65	..	65
Nevada	..	..	..
New Hampshire	10	2	12
New Jersey	139	14	153
New Mexico	..	1	1
New York	706	120	826
North Carolina	61	2	63
North Dakota	6	1	7
Ohio	275	5	280
Oklahoma	8	..	8
Oregon	36	5	41
Pennsylvania	399	12	411
Rhode Island	21	4	25
South Carolina	32	1	33
South Dakota	6	1	7
Tennessee	150	2	152
Texas	162	1	163
Utah	22	1	23
Vermont	27	2	29
Virginia	145	2	147
Washington	31	4	35
West Virginia	18	..	18
Wisconsin	109	1	110
Wyoming	..	..	..
Hawaii, Puerto Rico	17	2	19
Totals	4,686	326	5,012

1. National Board of Medical Examiners, government services, Canadian and foreign credentials, diploma and special exemption.

* This figure represents the number licensed by examination. It was not possible at this time to indicate whether these candidates were previously registered elsewhere, but the figure is believed to be a fair estimate.

TABLE 5.—*Internship Required by Medical Licensing Boards*

Alaska	1917	Pennsylvania	1914
Delaware	1924	Rhode Island	1917
District of Columbia	1930	South Dakota	1925
Illinois	1923	Utah	1926
Iowa	1924	Vermont	1934
Michigan	1922	Washington	1919
New Jersey	1916	West Virginia	1932
North Dakota	1918	Wisconsin	1927
Oklahoma	1933	Wyoming	1931
Oregon	1933		

REGISTRATION 1904-1933

A study of totals and percentages (table 8) for each year beginning with 1904 is of interest. The number (5,658) examined in 1933 was 5 less than the number examined in 1932 but 381 less than in 1904. By all methods, 7,180 were registered, 75 more than in 1932. It will be seen that there has been no constant increase or decrease in the total number of candidates registered from 1904 to 1933, although since 1906 the number licensed without examination has been increasing and those examined has diminished, owing to the universal

TABLE 6.—*Requirements of Preliminary Education*

Two Years of College	Affects Graduates of	Two Years of College	Affects Graduates of
Alabama	1919	New Hampshire	1919
Arizona	1922	New Jersey	1921
Arkansas	1922	New Mexico	1922
Colorado	1914	New York	1922
District of Columbia	1929	North Carolina	1922
Florida	1922	North Dakota	1912
Georgia	1922	Oklahoma	1921
Idaho	1938	Oregon	1924
Illinois	1923	Rhode Island	1922
Indiana	1915	South Carolina	1922
Iowa	1915	South Dakota	1915
Kansas	1922	Tennessee	1922
Kentucky	1922	Texas	1930
Louisiana	1922	Utah	1926
Maine	1920	Vermont	1922
Maryland	1922	Virginia	1922
Michigan	1922	Washington	1922
Minnesota	1912	West Virginia	1925
Montana	1922	Wisconsin	1919
Nevada	1922	Wyoming	1922

One Year of College	Affects Graduates of
California	1924
Connecticut	1919
Mississippi	1919
Pennsylvania	1918

High School Graduation or its Equivalent

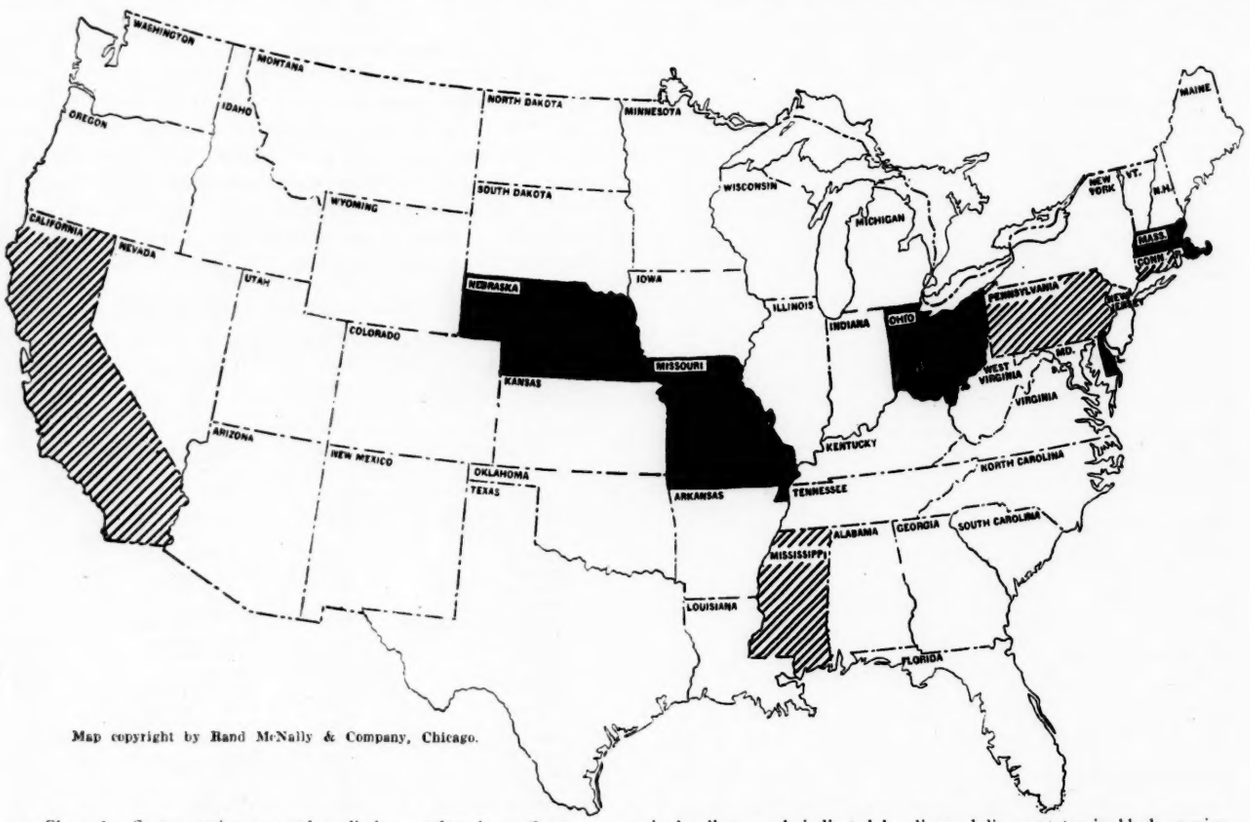
Delaware
Massachusetts
Missouri
Nebraska
Ohio

system of endorsement. The decrease in the number registered in 1918 was, of course, due to the sudden withdrawal of physicians and recent graduates from civilian life. Again in 1922 there was a notable reduction, this figure representing the small class that began the study of medicine in 1918. The number passed was 6 less than in 1932, while there was an increase of 81 among those licensed by endorsement.

Both in 1932 and 1933, 7.6 per cent of those examined failed. While these figures represent those registered in the years given, they do not in all states represent the number licensed. Licenses are withheld in many states, as indicated in the text describing table 1.

QUALIFICATIONS OF LICENTIATES

The educational fitness of the persons licensed to practice the healing art in the past twelve years is shown in table 9. Of the 7,180 registered by all methods in 1933, 6,732, or 93.8 per cent, graduated from approved medical schools and there were 448, 6.2 per cent, other practitioners licensed. For purposes of these statistics all schools rated as class A and B since 1907 are classified as approved. In the column "Others" are included graduates of institutions prior to 1907, of foreign medical faculties, class C graduates, undergraduates, osteopaths, and graduates of schools that have been refused all recognition as medical schools.



Map copyright by Rand McNally & Company, Chicago.

Chart 1.—State requirements of preliminary education. One year required college work indicated by diagonal lines; states in black require high school education and all other states have two-year college requirement.

REGISTRATION OF OSTEOPATHS, NONGRADUATES AND GRADUATES OF UNAPPROVED INSTITUTIONS

In table 10 will be noted the total number of graduates of osteopathic colleges and those institutions which have been classified as unapproved, who were registered with or without examination in 1933. Nine states registered 84 graduates of unapproved medical schools and six states registered 58 osteopaths. Of those examined, 79 were graduates of unapproved medical schools and 35 were osteopaths. Twenty-three osteopaths and 5 graduates of unapproved medical schools were licensed by endorsement. One nongraduate was registered without examination in Tennessee by a special act of the legislature. As will be noted, the 58 osteopaths were registered in Colorado, Connecticut, the District of Columbia, Massachusetts, Texas and Wisconsin. In this connection the following facts are of interest:

In Colorado, osteopaths are admitted to the examination for a license to practice medicine. They have no separate board. The statute of Colorado is silent with respect to the scope of practice authorized by a license issued to osteopaths. Applicants, apparently, are issued licenses to practice medicine generally.

The Connecticut statute provides that any registered osteopath may practice either medicine or surgery or both, as the case may be, after passing a satisfactory examination before the medical examining board.

The Massachusetts statute, by definition, includes osteopathy in the practice of medicine but does not differentiate the type of license issued to an osteopathic applicant. The medical practice act requires that any applicant for a license to practice medicine must be in possession of a degree of doctor of medicine, or its equivalent, from a legally chartered medical school that gives a full four-year course of instruction of not less than thirty-two weeks in each year.

The statutes of Texas provide for the issuing of a license to practice medicine only. So far as the statutes indicate, the osteopaths are not restricted in their field

of practice. The medical practice act requires that the applicant be a graduate of a reputable school whose entrance requirements and course of instruction are as high as those adopted by the better class of medical schools and whose course of instruction embraces not less than four terms of eight months each.

In Wisconsin there is one licensing board. A license issued to osteopathic candidates authorizes them to practice osteopathy and surgery.

TABLE 7.—*Candidates Examined—1929-1933, Inclusive*

	1929		1930		1931		1932		1933		Totals for 5 Years		
	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Passed	Failed	Percentage Failed
Alabama	34	1	27	1	29	0	14	0	11	0	115	2	1.7
Arizona	11	1	19	0	20	1	14	2	9	1	73	5	6.4
Arkansas	82	0	25	0	29	0	43	0	44	1	223	1	0.4
California	300	20	272	30	324	14	290	15	294	13	1,480	92	5.9
Colorado	50	0	55	0	48	2	59	3	60	0	272	5	1.8
Connecticut	68	3	51	10	66	4	68	12	63	15	316	44	12.2
Delaware	11	0	7	1	12	0	6	0	18	1	54	2	3.6
Dist. of Columbia	51	1	34	0	27	0	43	1	39	1	194	3	1.5
Florida	72	3	71	8	55	5	66	6	80	3	344	25	6.8
Georgia	78	0	72	0	77	0	100	0	88	1	415	1	0.2
Idaho	5	2	7	0	5	0	5	0	5	0	27	2	6.9
Illinois	381	22	388	38	365	24	360	28	369	14	1,863	126	6.3
Indiana	116	0	116	0	124	0	110	1	114	6	580	7	1.2
Iowa	100	0	112	0	109	1	115	0	110	1	546	2	0.4
Kansas	81	0	75	0	74	0	76	0	80	0	386	0	0.0
Kentucky	65	1	76	3	64	1	68	0	66	0	339	5	1.5
Louisiana	97	0	99	1	102	1	111	3	119	0	528	5	0.9
Maine	24	2	22	1	30	0	30	0	35	0	141	3	2.1
Maryland	106	0	120	1	153	3	176	5	165	2	720	11	1.5
Massachusetts	211	84	232	78	213	104	208	132	189	177	1,053	575	35.3
Michigan	266	1	302	0	260	0	219	0	194	0	1,241	1	0.1
Minnesota	155	0	176	0	150	0	142	0	126	1	749	1	0.1
Mississippi	27	0	31	2	35	0	27	0	24	0	144	2	1.4
Missouri	116	1	149	0	157	0	156	0	214	0	792	1	0.1
Montana	9	0	13	0	7	0	8	0	8	0	45	0	0.0
Nebraska	67	0	65	0	57	0	67	0	66	0	322	0	0.0
Nevada	2	2	2	0	2	0	4	1	1	1	11	4	26.7
New Hampshire	2	0	1	0	6	0	9	0	10	0	28	0	0.0
New Jersey	70	2	82	3	91	5	113	7	153	9	509	26	4.9
New Mexico	1	0	0	0	0	0	4	0	0	0	5	0	0.0
New York	900	143	810	108	838	146	717	179	747	146	4,012	722	15.3
North Carolina	97	8	85	5	74	0	86	1	65	0	407	14	3.3
North Dakota	17	5	16	2	16	1	21	0	14	2	84	10	10.6
Ohio	272	1	231	1	259	7	270	10	285	7	1,317	26	1.9
Oklahoma	54	0	52	0	51	0	60	0	66	0	283	0	0.0
Oregon	31	4	32	1	40	1	31	1	39	0	173	7	3.9
Pennsylvania	399	4	421	9	419	6	458	8	456	12	2,153	39	1.8
Rhode Island	50	0	73	2	36	0	40	1	38	3	237	6	2.5
South Carolina	29	0	37	0	47	0	40	0	38	0	191	0	0.0
South Dakota	11	0	17	0	16	0	12	0	14	0	70	0	0.0
Tennessee	153	0	155	0	198	3	190	1	141	0	837	4	0.5
Texas	148	0	147	0	154	2	147	0	166	0	762	2	0.3
Utah	8	0	10	0	10	0	24	0	9	0	61	0	0.0
Vermont	31	1	19	0	20	0	23	0	27	0	120	1	0.8
Virginia	120	3	122	5	101	2	115	3	146	1	604	14	2.3
Washington	46	1	47	2	33	0	42	0	41	0	209	3	1.4
West Virginia	43	3	41	0	36	2	26	1	30	2	176	8	4.3
Wisconsin	79	6	99	0	98	11	116	3	115	5	507	25	4.7
Wyoming	0	1	4	0	5	0	2	0	2	0	13	1	7.2
U. S. Territories and Possessions	130	21	128	4	118	2	104	4	36	4	516	35	6.4
Totals	5,623		5,563		5,608		5,663		5,658		28,115		
Totals—Examined													
Passed	5,276		5,247		5,260		5,235		5,229		26,247		
Failed	347		316		348		428		429		1,868		
Percentage Failed	6.2		5.7		6.2		7.6		7.6		6.6		

In the District of Columbia, one osteopath was granted the privilege to practice surgery by reciprocity.

The 84 graduates of unapproved schools were licensed in nine states. Alabama, Michigan, New Jersey, New Mexico, Tennessee and Washington each licensed one, and Arkansas licensed two. In most of these states there was a specific reason for registration. Illinois recognizes a medical school which is not in good standing with other state boards. The Massachusetts law has already been described.

These data are illustrated in chart 2. Those states which licensed more than ten such individuals are indicated in black and those licensing fewer than ten by slanted lines.

TABLE 8.—*Registration—1904-1933*

	All Candidates Examined			Registered Without Written Examination	Total Registered
Year	Examined	Passed	Percentage Failed		
1904	7,039	5,676	19.4	999	6,675
1905	7,180	5,690	20.8	394	6,084
1906	8,036	6,369	20.7	1,499	7,868
1907	7,275	5,727	21.3	1,427	7,154
1908	7,773	6,087	21.7	1,280	7,367
1909	7,290	5,860	19.6	1,373	7,233
1910	7,005	5,713	18.4	1,640	7,353
1911	6,964	5,582	19.8	1,243	6,825
1912	6,879	5,466	20.5	1,271	6,737
1913	6,449	5,250	18.6	1,291	6,541
1914	5,577	4,377	21.5	1,437	5,814
1915	5,332	4,505	15.5	1,303	5,898
1916	4,870	4,143	14.9	1,350	5,493
1917	4,751	4,082	14.1	1,360	5,442
1918	3,662	3,179	13.2	1,046	4,225
1919	4,750	4,074	14.2	2,541	6,615
1920	4,794	4,060	15.3	2,553	6,613
1921	4,817	4,221	12.4	2,177	6,398
1922	4,020	3,528	12.2	2,057	5,585
1923	4,718	4,019	14.8	2,397	6,416
1924	5,385	4,749	11.8	1,904	6,653
1925	5,993	5,441	9.2	1,840	7,281
1926	5,763	5,307	7.9	1,929	7,236
1927	5,380	4,993	7.2	2,169	7,162
1928	5,452	5,084	6.7	2,223	7,307
1929	5,623	5,276	6.2	2,414	7,690
1930	5,563	5,247	5.7	2,362	7,609
1931	5,608	5,260	6.2	2,208	7,468
1932	5,663	5,235	7.6	1,870	7,105
1933	5,658	5,229	7.6	1,951	7,180

TABLE 9.—*Source of Physicians Registered—1922-1933*

	Graduates of Approved Schools		Others		
Year	Number	Per Cent	Number	Per Cent	Totals
1922	4,506	80.7	1,079	19.3	5,585
1923	5,191	80.9	1,225	19.1	6,416
1924	5,672	85.3	981	14.7	6,653
1925	6,294	86.4	987	13.6	7,281
1926	6,418	88.7	818	11.3	7,236
1927	6,406	89.4	756	10.6	7,162
1928	6,584	90.1	723	9.9	7,307
1929	6,997	91.0	693	9.0	7,690
1930	7,007	92.1	602	7.9	7,609
1931	6,927	92.8	541	7.2	7,468
1932	6,660	93.7	445	6.3	7,105
1933	6,732	93.8	448	6.2	7,180

TABLE 10.—*Graduates of Other Than Approved Medical Schools Registered—1933*

	Examination		Reciprocity and Endorsement		
	Osteopaths	Graduates of Unapproved Schools	Osteopaths	Graduates of Unapproved Schools and Undergrads.	Totals
Alabama	0	0	0	1	1
Arkansas	0	1	0	1	2
Colorado	8	0	0	0	8
Connecticut	2	0	0	0	2
District of Columbia	0	0	1	0	1
Illinois	0	38	0	0	38
Massachusetts	15	38	0	0	53
Michigan	0	0	0	1	1
New Jersey	0	0	0	1	1
New Mexico	0	0	0	1	1
Tennessee	0	1	0	1	2
Texas	4	0	13	0	17
Washington	0	1	0	0	1
Wisconsin	6	0	9	0	15
Totals	35	79	23	6	143

It is to be regretted that some states, even in small numbers, grant licenses to individuals unacceptable to the medical profession. The medical profession should be ever watchful and untiring in its efforts to pre-

TABLE 11.—*Graduates of Medical Faculties in Countries Other Than the United States and Canada Examined—1933*

Marginal Number		1 Arkansas	2 California	3 Colorado	4 Dist. Columbia	5 Florida	6 Illinois	7 Indiana	8 Iowa	9 Louisiana	10 Maine	11 Maryland	12 Massachusetts	13 Minnesota	14 Missouri	15 New Jersey	16 New York	17 Ohio	18 Oregon	19 Pennsylvania	20 Rhode Island	21 Tennessee	22 Texas	23 West Virginia	24 Wisconsin	25 Puerto Rico	Totals	Examined—Passed	Examined—Failed	Percentage Failed	No. Boards Examined by	Marginal Number
		P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F	P F						
	AUSTRIA																															
1	Karl-Franzens-Universität, Graz		1 1														1 1		1 0								5	3	2	40.0	3	1
2	Leopold-Franzens-Universität, Innsbruck																	1 0									1	1	0	0.0	1	2
3	Universität Wien	1 0	1 0				2 0										3 3	1 0						0 1			12	8	4	33.3	6	3
	CUBA																															
4	Universidad de la Habana					2 0										1 0				1 0							4	4	0	0.0	3	4
	CZECHOSLOVAKIA																															
5	Deutsche Universität, Prag																1 4										5	1	4	80.0	1	5
6	Karlovy University, Praha						1 0																				1	1	0	0.0	1	6
7	Masarykovy University, Brně																0 1										1	0	1	100.0	1	7
8	Univerzity Komenského, Bratislave																0 1										1	0	1	100.0	1	8
	DOMINICAN REPUBLIC																															
9	Universidad de Santo Domingo																									1 0	1	1	0	0.0	1	9
	ENGLAND																															
10	Licentiate of the Royal College of Physicians of London																1 0										1	1	0	0.0	1	10
11	University of London																2 0										2	2	0	0.0	1	11
12	University of Sheffield																0 1										1	0	1	100.0	1	12
	ESTONIA																															
13	Tartu Ülikooli			1 0																							1	1	0	0.0	1	13
	FRANCE																															
14	Université de Lyon																1 0										1	1	0	0.0	1	14
15	Université de Montpellier																			0 1							1	0	1	100.0	1	15
16	Université de Paris																2 1									3 0	6	5	1	16.7	2	16
17	Université de Toulouse																								1 0		1	1	0	0.0	1	17
	GERMANY																															
18	Albert-Ludwigs-Universität, Freiburg																1 2	1 0				1 0					5	3	2	40.0	3	18
19	Friedrich-Alexanders-Universität, Erlangen																0 1										1	0	1	100.0	1	19
20	Friedrich-Wilhelms-Universität, Berlin						1 0					1 0					1 0										3	3	0	0.0	3	20
21	Hamburgische Universität											1 0															1	1	0	0.0	1	21
22	Julius-Maximilians-Universität, Würzburg																								0 1		1	0	1	100.0	1	22
23	Universität Greifswald		1 0																								1	1	0	0.0	1	23
24	Universität Heidelberg																1 1										2	1	1	50.0	1	24
	GREECE																															
25	National University of Athens																0 1										1	0	1	100.0	1	25
	HUNGARY																															
26	Magyar Királyi Erzsébet Tudományegyetem, Pecs						1 0											2 2									5	3	2	40.0	2	26
27	Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest				1 0		1 0																				2	2	0	0.0	2	27
	IRELAND																															
28	Licentiate of the Royal College of Surgeons of Ireland																1 0										1	1	0	0.0	1	28
29	National University of Ireland														1 0		1 0										2	2	0	0.0	2	29
	ITALY																															
30	Regia Università di Bologna																1 0										1	1	0	0.0	1	30
31	Regia Università di Firenze								1 0								0 1										2	1	1	50.0	2	31
32	Regia Università di Genova															0 1	0 1										2	0	2	100.0	2	32
33	Regia Università di Milano		1 0																								1	1	0	0.0	1	33
34	Regia Università di Napoli						1 1				1 0		0 3	1 0		3 4	0 10	0 1			1 0						26	7	19	73.1	8	34
35	Regia Università di Padova																0 1										1	0	1	100.0	1	35
36	Regia Università di Palermo											1 0				2 1	2 4	1 0									11	6	5	45.5	4	36
37	Regia Università di Pavia															1 0											1	1	0	0.0	1	37
38	Regia Università di Pisa															1 0											1	1	0	0.0	1	38
39	Regia Università di Roma		0 1										0 1			4 0	4 2										12	8	4	33.3	4	39
	MEXICO																															
40	Escuela Libre de Homeopatía del Estado de Puebla																0 1										1	0	1	100.0	1	40
41	Universidad Nacional, México, D. F.									1 0							1 0						1 0				3	3	0	0.0	3	41
	NORWAY																															
42	Kongelige Frederiks Universitets, Oslo													1 0													1	1	0	0.0	1	42

| | | |

TABLE 12.—*Graduates of Medical Faculties of Universities in Countries Other than the United States and Canada Examined by Licensing Boards of the United States and Possessions, 1928-1933, Inclusive*

	1928-1932 Inclusive		1933	
	Number Examined	Percentage Failed	Number Examined	Percentage Failed
AUSTRALIA				
University of Melbourne	2	0.0	..	....
University of Sydney	1	0.0	..	....
AUSTRIA				
Karl-Franzens-Universität, Graz	11	54.5	5	40.0
Leopold-Franzens-Universität, Innsbruck	3	33.3	1	0.0
Universität Wien	61	29.5	12	33.3
BELGIUM				
Université Catholique de Louvain	5	40.0	..	....
Université de Liège	1	0.0	..	....
CHINA				
Hunan-Yale College of Medicine, Changsha	1	0.0	..	....
Mukden Medical College	1	100.0	..	....
Pennsylvania Medical School, Shanghai	2	0.0	..	....
COLOMBIA				
Universidad de Cartagena	1	0.0	..	....
CUBA				
Universidad de la Habana	17	35.3	4	0.0
CZECHOSLOVAKIA				
Deutsche Universität, Prag	17	47.1	5	80.0
Karlovy University, Praha	11	27.3	1	0.0
Masarykovy University, Brně	2	100.0	1	100.0
Univerzity Komenského, Bratislave	..	....	1	100.0
DENMARK				
Københavns Universitet	3	66.7	..	....
DOMINICAN REPUBLIC				
Universidad de Santo Domingo	3	33.3	1	0.0
EL SALVADOR				
Universidad de El Salvador, San Salvador	2	50.0	..	....
ENGLAND				
Licentiate in Med., Surg. & Midwifery, Apothecaries Society of London	2	50.0	..	....
Licentiate of the Royal Coll. of Phys. of London	..	....	1	0.0
Licentiate of the Royal Coll. of Phys. of London, Member of the Royal Coll. of Surgs. of England	15	6.7	..	....
Member of the Royal Coll. of Surgs. of England	1	0.0	..	....
University of Liverpool	1	0.0	..	....
University of London	2	0.0	2	0.0
University of Oxford	1	0.0	..	....
University of Sheffield	..	....	1	100.0
ESTONIA				
Tartu Ülikooli	..	....	1	0.0
FRANCE				
Université de Bordeaux	5	60.0	..	....
Université de Lyon	1	0.0	1	0.0
Université de Montpellier	1	0.0	1	100.0
Université de Paris	26	30.7	6	16.7
Université de Toulouse	..	....	1	0.0
GERMANY				
Albert-Ludwigs-Universität, Freiburg	7	28.6	5	40.0
Albertus-Universität, Königsberg	6	50.0	..	....
Christian-Albrechts-Universität, Kiel	4	50.0	..	....
Eberhard-Karls-Universität, Tübingen	2	50.0	..	....
Friedrich-Alexanders-Universität, Erlangen	3	33.3	1	100.0
Friedrich-Wilhelms-Universität, Berlin	28	46.4	3	0.0
Georg August-Universität, Göttingen	1	0.0	..	....
Hamburgische Universität	1	0.0	1	0.0
Hessian Ludwigs-Universität, Giessen	1	0.0	..	....
Johann Wolfgang Göthe-Universität, Frankfurt-am-Main	2	50.0	..	....
Julius-Maximilians-Universität, Würzburg	7	85.7	1	100.0
Ludwig-Maximilians-Universität, München	12	25.0	..	....
Rheinische Friedrich-Wilhelms-Universität, Bonn	6	33.3	..	....
Schlesische-Friedrich-Wilhelms-Universität, Breslau	4	75.0	..	....
Thüringische Landesuniversität, Jena	7	42.9	..	....
Universität Greifswald	..	....	1	0.0
Universität Heidelberg	1	0.0	2	50.0
Universität Leipzig	3	33.3	..	....
GREECE				
National University of Athens	27	77.8	1	100.0
HONDURAS				
Universidad Central de la República de Honduras, Tegucigalpa	1	0.0	..	....
HUNGARY				
Magyar Királyi Erzsébet Tudományegyetem, Pecs	6	50.0	5	40.0
Magyar Királyi Ferencz József Tudományegyetem, Szeged	1	100.0	..	....
Magyar Királyi Pázmány Petrus Tudományegyetem, Budapest	27	25.9	2	0.0
Magyar Királyi Tisza-István-Tudományegyetem, Debrecen	1	0.0	..	....
IRELAND				
Licentiate of the Royal Coll. of Phys. of Ireland, Licentiate of the Royal Coll. of Surgs. of Ireland	2	0.0	..	....
Licentiate of the Royal Coll. of Surgs. of Ireland	..	....	1	0.0
National University of Ireland	15	13.3	2	0.0
Queen's University, Belfast	6	33.3	..	....
University of Dublin	3	33.3	..	....
ITALY				
Regia Università di Benito Mussolini, Bari	1	100.0	..	....
Regia Università di Bologna	12	41.7	1	0.0
Regia Università di Catania	4	50.0	..	....
Regia Università di Firenze	5	40.0	2	50.0
Regia Università di Genova	3	66.7	2	100.0
Regia Università di Messina	1	0.0	..	....
Regia Università di Milano	..	....	1	0.0
ITALY—Continued				
Regia Università di Modena	6	66.7	..	....
Regia Università di Napoli	116	67.2	26	73.1
Regia Università di Padova	9	55.6	1	100.0
Regia Università di Palermo	25	76.0	11	45.5
Regia Università di Pavia	4	75.0	1	0.0
Regia Università di Pisa	2	50.0	1	0.0
Regia Università di Roma	41	56.1	12	33.3
Regia Università di Siena	1	0.0	..	....
Regia Università di Torino	1	100.0	..	....
JAPAN				
Japan Medical College, Hongo, Tokyo	1	0.0	..	....
Keio Gijuku University, Tokyo	3	33.3	..	....
Kumamoto Medical College	1	100.0	..	....
Nagasaki Medical College	1	100.0	..	....
Osaka Imperial University	1	0.0	..	....
Tohoku Imperial University, Sendai	2	100.0	..	....
Tokyo Charity Hospital Medical College	6	66.7	..	....
Tokyo Imperial University	2	0.0	..	....
Tokyo Women's Medical College	1	0.0	..	....
MEXICO				
Escuela de Medicina de Nuevo León, Monterrey	4	0.0	..	....
Escuela de Medicina, Oaxaca	1	0.0	..	....
Escuela Libre de Homeopatia, México, D.F.	4	0.0	..	....
Escuela Libre de Homeopatía del Estado de Puebla	..	....	1	100.0
Escuela Médico Militar, México, D.F.	1	0.0	..	....
Instituto Literario y Científico, San Luis Potosi	2	0.0	..	....
Universidad de Guadalajara	14	50.0	..	....
Universidad Nacional, México, D.F.	21	4.8	3	0.0
NETHERLANDS				
Universiteit van Amsterdam	2	50.0	..	....
NEW ZEALAND				
University of Otago, Dunedin	1	0.0	..	....
NORWAY				
Kongelige Frederiks Universitets, Oslo	2	0.0	1	0.0
POLAND				
Uniwersytetu Jana, Lwów	4	25.0	..	....
Uniwersytetu Stefana Batorego, Wilnie	1	0.0	..	....
Uniwersytetu Warszawski	2	50.0	..	....
PORTUGAL				
Faculdade de Medicina de Lisbôa	4	0.0	..	....
Faculdade de Medicina do Pôrto	8	62.5	..	....
Universidade de Coimbra	3	33.3	..	....
RUMANIA				
Universitatea din Bucuresti	2	50.0	..	....
Universitatea din Iasi	2	0.0	..	....
Universitatea Regele Ferdinand I-iu din Cluj	5	60.0	3	66.7
SCOTLAND				
Licentiate of the Royal Coll. of Phys., of the Royal Coll. of Surgs., Edinburgh, and of the Royal Faculty of Phys. & Surgs. of Glasgow	10	40.0	3	66.7
School of Medicine of the Royal Colleges, Edinburgh	1	100.0	1	0.0
University of Aberdeen	2	50.0	3	33.3
University of Edinburgh	37	8.1	18	5.6
University of Glasgow	5	20.0	1	0.0
University of St. Andrews	1	100.0	26	15.4
SOUTH AFRICA, UNION OF				
University of the Witwatersrand, Johannesburg	1	0.0	..	....
SPAIN				
Universidad Central de España, Madrid	8	37.5	1	0.0
Universidad de Barcelona	2	0.0	..	....
Universidad de Sevilla	..	....	1	0.0
SWEDEN				
Kungl. Universitetet i Uppsala	1	0.0	..	....
SWITZERLAND				
Universität Basel	1	0.0	1	0.0
Universität Bern	8	50.0	2	50.0
Universität Zürich	6	50.0	..	....
Université de Genève	9	33.3	1	0.0
Université de Lausanne	1	0.0	..	....
SYRIA				
American University of Beirut	3	0.0	1	0.0
Université de St. Joseph, Beyrouth	3	100.0	1	100.0
TURKEY				
University of Istanbul	4	75.0	..	....
UNION OF SOCIALIST SOVIET REPUBLICS				
Dnepropetrovsk Medical Institute	2	100.0	..	....
First Leningrad Medical Institute	7	42.9	..	....
First Moscow Medical Institute	8	75.0	..	....
Irkutsk Medical Institute	1	0.0	..	....
Kharkov Medical Institute	12	41.7	2	50.0
Kiev Medical Institute	17	52.9	..	....
Odessa Medical Institute	8	50.0	..	....
Psycho-Neurological Institute, Petrograd	3	100.0	1	100.0
Saratov Medical Institute	7	57.1	1	100.0
Second Leningrad Medical Institute	1	100.0	..	....
Severo-Kavka Medical Institute, Rostov-on-the-Don	5	40.0	..	....
Tomsk Medical Institute	9	44.4	..	....
Voronezh Medical Institute	3	33.3	..	....
YUGOSLAVIA				
Zagrebaskog Universiteta	1	0.0	..	....

and in particular Edinburgh, tightened its regulations, the tide moved to continental Europe. In 1933 the largest number came from Italy, 58, but 52 studied in Scotland, 18 in Austria and 14 in Germany. These individuals were registered in 25 states.

Those individuals desiring to study medicine, who are unable to gain admission to schools either in the United States or in Europe, may endeavor to go elsewhere. The Council is attempting to make a study of medical education in South and Central America and a preliminary report was presented to the Annual Congress on Medical Education, Licensure and Hospitals and Canada admitted to licensing examinations in this country. A similar tabulation is presented for the year 1933. One hundred and thirty-three schools are included and 8 of the licensing corporations of Great Britain, and 902 were examined during the five year period and 200 in 1933. The largest number examined represented the Regia Università di Napoli, 116, of whom 67.2 per cent failed, the Universität Wien in the five year period was second (61) and the Regia Università di Roma was third (41), while there were 37 from the University of Edinburgh. A study of the percentage failed is of interest.

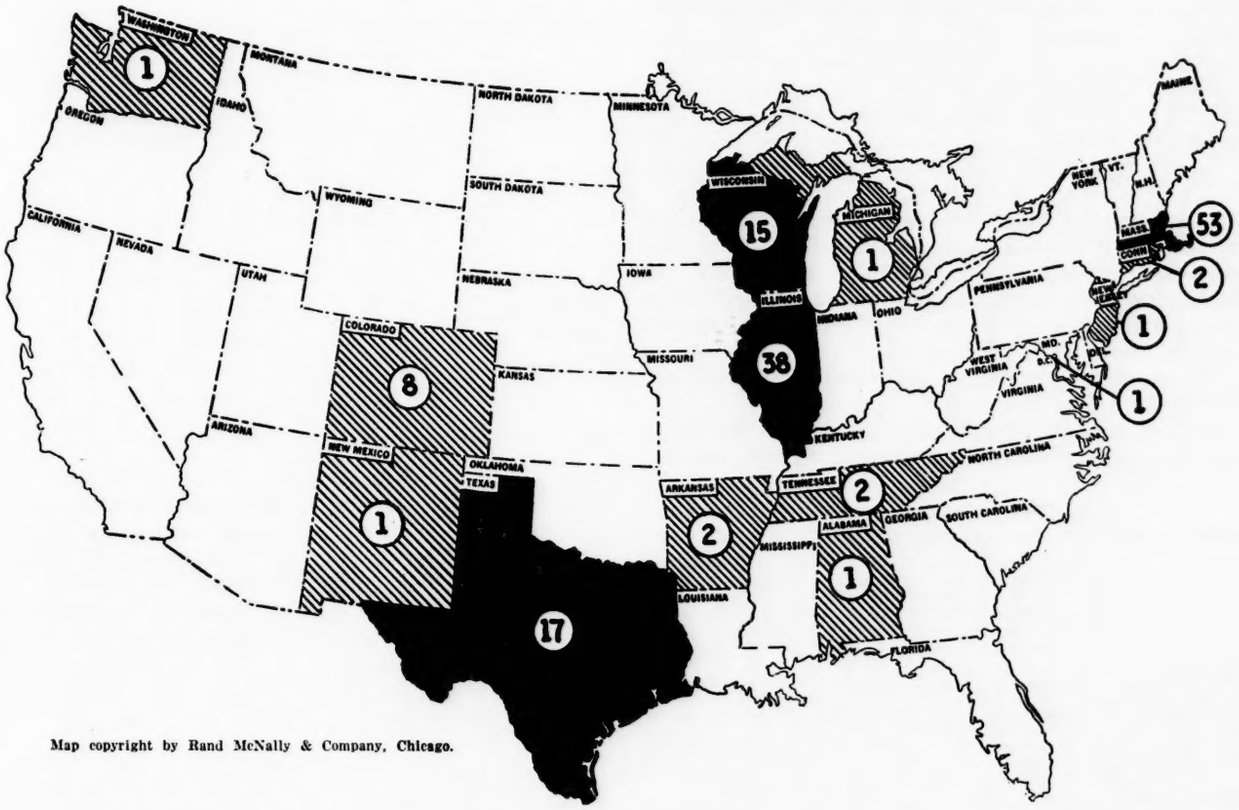


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Chart 2.—States licensing other than graduates of approved medical schools during 1933. The states in black licensed more than 10 such candidates. The slanted lines indicate those licensing fewer than 10 graduates.

in February 1934. Also in February the Federation of State Medical Boards passed the following resolution:

WHEREAS, It has been brought to the attention of the Federation of State Medical Boards of the United States that an unknown number of American students are studying medicine in foreign medical schools where adequate information concerning standards of medical education is not available, therefore, be it

Resolved, That the Federation of State Medical Boards of the United States recommend to its constituent state boards, and to the National Board of Medical Examiners, that, until adequate information is available, these boards deny graduates of foreign medical schools admission to the various medical licensure examinations, and be it further

Resolved, That a copy of these resolutions be transmitted to the Council on Medical Education and Hospitals of the American Medical Association and to the Association of American Medical Colleges, with the request that full and adequate publicity be given to this resolution.

These various endeavors should tend to stop the flow of American students to European countries, since, it has been pointed out, schools in this country are producing more physicians than the country needs and there are more physicians in the United States than are needed to provide adequate medical service.

In table 12 are assembled figures showing the standing during the five year period 1928-1932 of the graduates of medical faculties outside the United States

Here again an attempt has been made to show procedure over a period of years, and if an individual fails or is examined in various years he is recorded as such for a given year.

NATURALIZATION A REQUISITE FOR LICENSURE

In twenty-nine states there is a requirement that the applicant must either be a naturalized citizen, have taken out first papers or declared intention of becoming a citizen, before a license to practice medicine will be granted. The states of Arkansas, Georgia, Kansas, Kentucky, Nebraska, Oklahoma, South Dakota, Tennessee and Wyoming require naturalization. Thirteen states require that first papers shall have been taken out; namely, Alabama, Florida, Louisiana, Maine, Maryland, Michigan, Minnesota, Mississippi, New Hampshire, North Dakota, Oregon, Virginia and Wisconsin. In Idaho, Indiana (reciprocal applicants only), Nevada, New Jersey, New York, Ohio and Rhode Island the applicant must have declared his intention of becoming a citizen before being eligible for registration.

BASIC SCIENCE BOARDS

Boards for the examination in the basic sciences of all those desiring to secure ultimately the right to practice the healing art functioned in seven states in 1933; namely, Arkansas, Connecticut, District of Columbia, Minnesota, Nebraska, Washington and Wisconsin. The states of Arizona and Oregon enacted basic science laws during the year, which became effective Jan. 1, 1934. Statistics based on the number of candidates certified in 1933, and those who failed to secure this certification, together with totals for other years, are included in the accompanying tabulations. Similar data have been published in the State Board Number of THE JOURNAL since 1928.

The subjects in which examinations were conducted are listed in table 1.

As indicated in table 2, 658 candidates were examined by the seven boards in operation. Of this number, 598 were doctors of medicine and medical students (referred to hereafter as physicians), 43 osteopaths, 11 chiropractors and for 6 it was unable to determine what profession they represented. Of the physicians examined, 11.9 per cent failed, 35.0 per cent of the osteopaths failed and 81.8 per cent of the chiropractors, and all of those unclassified failed. There were 527 physicians who passed, 28 osteopaths and 2 chiropractors. Minnesota examined the largest number, 138, and also had the highest percentage of failures, 33.3 per cent, while Connecticut examined 133 and had only 4.5 per cent failures. The District of Columbia, on the other hand, examined only 43, of whom 32.6 per cent failed. Of osteopaths, Connecticut examined the highest number, 17, and Minnesota examined 12.

The number of certificates granted by examination, reciprocity and endorsement are listed in table 3. A total of 557 certificates were granted after examination, of whom 527 were physicians, 28 osteopaths and 2 chiropractors. There were 117 candidates certified without examination, by reciprocity or endorsement, consisting of 108 physicians, 8 osteopaths and 1 chiropractor. Wisconsin accepted the greatest number without examination, 58 of whom were physicians, 7 osteopaths and 1 a chiropractor, while Minnesota registered 40 physicians and Nebraska, 10 physicians and 1 osteopath. Wisconsin registered seven of the eight osteopaths by endorsement.

Table 4 shows the number of candidates examined and certified from 1927 to 1933 inclusive. In 1933, 11.9 per cent of physicians failed, as compared with 50.0 per cent of nonmedical practitioners. In 1928, when five boards were functioning, there were 646 physicians examined, of whom 60, or 9.3 per cent, failed and 59 nonmedical practitioners, of whom 28, 47.5 per cent, failed. In 1933, 635 physicians and 39 other practitioners were certified. During the seven year period a total of 4,239 physicians were examined, of whom 10.7 per cent failed and 470 other practitioners, of whom 51.3 per cent failed. During this period, 560 physicians were certified without examination, while only 26 other practitioners were so registered.

Altogether, 4,344 physicians and 255 others have been certified in the seven states. From the high percentage of failures in the nonmedical group it seems apparent that the enforcement of basic science laws affects most seriously this group. Examination of the records of a considerable number of states having basic science laws will show that before such laws were enacted the number of nonmedical practitioners appearing for examination and licensure was very considerable and was growing.

The basic science board seems desirable in states having a multiplicity of examining and licensing boards. The object of these boards has been to provide a means

TABLE 1.—*Subjects of Examinations*

	Examinations Required in						
	Anatomy	Bacteriology	Chemistry	Diagnosis	Hygiene	Pathology	Physiology
Arizona	+	+	+	...	+	+	+
Arkansas	+	+	+	..	..	+	+
Connecticut	+	..	..	+	+	+	+
District of Columbia	+	+	+	..	..	+	+
Minnesota	+	+	+	..	+	+	+
Nebraska	+	+	+	..	+	+	+
Oregon	+	..	+	..	+	+	+
Washington	+	..	+	..	+	+	+
Wisconsin	+	..	..	+	..	+	+

TABLE 2.—*Applicants Examined—1933*

	Year Enacted	Physicians or Medical Students		Osteopaths		Chiropractors		Unclassified		Total Examined	Passed	Failed	Percentage Failed
		P	F	P	F	P	F	P	F				
Arkansas	1929	61	2	0	0	0	0	0	0	63	61	2	3.2
Connecticut	1925	112	1	15	2	0	3	0	0	133	127	6	4.5
District of Columbia	1929	29	14	0	0	0	0	0	0	43	29	14	32.6
Minnesota	1927	88	35	4	8	0	1	0	2	138	92	46	33.3
Nebraska	1927	75	13	1	1	0	0	0	3	93	76	17	18.3
Washington	1927	73	6	2	4	2	3	0	1	91	77	14	15.4
Wisconsin	1925	89	0	6	0	0	2	0	0	97	95	2	2.1
Totals—Examined			598		43		11		6	658			
Totals—Passed			527		28		2		0		557		
Totals—Failed			71		15		9		6			101	
Percentage Failed			11.9		35.0		81.8		100.0				15.3

TABLE 3.—*Certificates Issued by Examination, Reciprocity and Endorsement—1933*

	Examination					Reciprocity and Endorsement					
	Physicians or Med. Students	Osteopaths	Chiropractors	Unclassified	Totals	Physicians	Osteopaths	Chiropractors	Unclassified	Totals	Registered
Arkansas	61	0	0	0	61	0	0	0	0	0	61
Connecticut	112	15	0	0	127	0	0	0	0	0	127
District of Columbia	29	0	0	0	29	0	0	0	0	0	29
Minnesota	88	4	0	0	92	40	0	0	0	40	132
Nebraska	75	1	0	0	76	10	1	0	0	11	87
Washington	73	2	2	0	77	0	0	0	0	0	77
Wisconsin	89	6	0	0	95	58	7	1	0	66	161
Totals	527	28	2	0	557	108	8	1	0	117	674

TABLE 4.—*Total Candidates 1927-1933*

	Number of Boards	Physicians or Medical Students						Other Practitioners					
		Examination				Endorsement	Total Certified	Examination				Endorsement	Total Certified
		Examined	Passed	Failed	Percentage Failed			Examined	Passed	Failed	Percentage Failed		
1927	5	305	279	26	8.5	26	305	22	15	7	31.8	1	16
1928	5	646	586	60	9.3	19	605	59	31	28	47.5	0	31
1929	7	668	610	58	8.7	75	685	66	31	35	53.0	0	31
1930	7	685	606	79	11.5	104	710	78	30	48	61.5	4	34
1931	7	680	586	94	13.8	130	716	107	48	59	55.1	0	48
1932	7	657	590	67	10.2	98	688	78	44	34	43.6	12	56
1933	7	598	527	71	11.9	108	635	60	30	30	50.0	9	39
Totals		4,239	3,784	455	10.7	560	4,344	470	229	241	51.3	26	255

of insuring that all candidates seeking authority to care for sick and injured people shall first possess a reasonable knowledge of the sciences fundamental to the healing art.

NATIONAL BOARD OF MEDICAL EXAMINERS

Statistics are herewith presented regarding the examinations and the issuance of certificates by the National Board of Medical Examiners. Similar material has been presented consecutively for sixteen years. The National Board was organized in 1915 and since 1922 has conducted its examinations in three parts, parts I and II being written examinations and part III a practical and clinical examination.

TABLE 1.—*Examinations in Part III*

Examinations of	Total Examined	Passed	Incomplete	Failed	Percentage Failed
1922	28	28	0	0	0.0
1923	76	75	0	1	1.3
1924	120	114	0	6	5.0
1925	217	206	0	11	5.1
1926	255	243	0	12	4.7
1927	294	272	0	22	7.5
1928	322	306	0	16	5.0
1929	352	336	1	15	4.3
1930	419	399	0	20	4.8
1931	437	419	0	18	4.1
1932	549	521	0	28	5.1
1933	552	527	0	25	4.5
Totals	3,621	3,446	1	174	4.8

TABLE 2.—*Parts I, II and III, Excluding Duplications*

	Total Examined	Passed	Incomplete	Failed	Percentage Failed
1922	525	381	58	86	18.4
1923	775	594	79	102	14.7
1924	978	756	69	153	16.8
1925	1,167	915	50	202	18.1
1926	1,161	930	105	126	11.9
1927	1,248	947	142	159	14.4
1928	1,430	1,101	211	118	9.7
1929	1,723	1,280	319	124	8.8
1930	2,043	1,546	322	175	10.2
1931	2,218	1,632	410	176	9.7
1932	2,341	1,849	355	137	6.9
1933	2,277	1,806	280	191	9.6
Totals	17,886	13,737	2,400	1,749	11.3

Four examinations were held in parts I and II during 1933, at which 1,234 and 714, respectively, were examined. In part I, 782 passed and 136, or 14.8 per cent, failed, and in part II, 651 passed and 63, or 8.8 per cent, failed. Since 1922 a total of 10,436 examinations have been given in part I and 5,312 in part II and up to Dec. 31, 1933, 6,707 individuals have been successful in passing part I and 4,712 in passing part II. The figure 10,436 includes over the twelve year period 2,536 who took incomplete examinations in part I and of the 5,312 who were examined in part II, 33 were incomplete. An incomplete examination is arranged for candidates taking part I at the end of their second medical year in schools whose third year curriculums include courses in one or two subjects of this part. The subjects thus postponed may be taken at any examination period after the candidate has completed them in his medical school. Also listed under this heading are those who wish to spend some additional time on one or two subjects. Incomplete examinations were not included when computing percentages, since they represent neither a candidate eligible for certification nor a failure.

The figures cover the totals of each examination given during a calendar year and include some who fail and are reexamined during the same year and also some who pass parts I and II in the same year. Therefore they represent examinations conducted rather than individuals examined.

In the twelve year period there were 1,193 failures in part I, 15.1 per cent, and 567 in part II, 10.7 per cent.

The results of the examinations in part III since 1922 are presented in table 1. In 1933, 552 were examined, as compared with 549 in 1932. Of those examined, 4.5 per cent failed, while 5.1 per cent failed in 1932. During 1933, 527 were granted certificates. In 1922, 28 were examined, all of whom were granted certificates. During the twelve year period 3,621 were examined, of whom 3,446 were granted certificates and 174, or 4.8 per cent, failed. Here again a candidate having failed may subsequently receive a certificate. Since the National Board has functioned, 3,714 certificates have been granted.

The figures in table 2 represent the number of individuals examined during any one year. The classification as passed or failed, in cases in which more than one examination has been taken in a given year, was based on the results of the last examination during the year in question. For example, if in 1933 a student passed part I but later failed part II, he is listed as having failed. Taking this into consideration, there were 2,277 who took the examinations of the National Board during 1933, as compared with 2,341 in 1932. Only 525 were examined in 1922. A total of 13,737 individuals passed one or more of the examinations and 1,749, or 11.3 per cent, failed. Incomplete examinations have been taken by 2,400 individuals, many of whom have since received certificates.

Diplomates licensed on the basis of their credentials in the United States increased from 2 in 1917 to 391 in 1933, 2,190 having been so licensed since the National Board was created. A total of 3,714, however, have received the certificate of the National Board. In 1933, diplomates were registered as follows:

	Number Registered		Number Registered
Alabama	4	New Jersey	19
Arizona	3	New Mexico	1
California	9	New York	108
Colorado	2	North Carolina	3
Connecticut	29	North Dakota	1
Georgia	1	Ohio	7
Hawaii	6	Oregon	8
Idaho	2	Pennsylvania	15
Illinois	26	Puerto Rico	1
Iowa	1	Rhode Island	6
Kentucky	4	South Carolina	1
Maine	1	South Dakota	2
Maryland	5	Tennessee	1
Massachusetts	85	Utah	1
Minnesota	6	Vermont	2
Mississippi	1	Virginia	5
Missouri	9	Washington	8
Nebraska	1	West Virginia	1
New Hampshire	3	Wisconsin	3
Total			391

The certificate of the National Board of Medical Examiners is granted recognition by the licensing boards of the following forty-two states and three territories:

Alabama	Iowa	Nevada	Puerto Rico
Arizona	Kansas	New Hampshire	Rhode Island
California	Kentucky	New Jersey	South Carolina
Canal Zone	Maine	New Mexico	South Dakota
Colorado	Maryland	New York	Tennessee
Connecticut	Massachusetts	North Carolina	Utah
Delaware	Minnesota	North Dakota	Vermont
Georgia	Mississippi	Ohio	Virginia
Hawaii	Missouri	Oklahoma	Washington
Idaho	Montana	Oregon	West Virginia
Illinois	Nebraska	Pennsylvania	Wisconsin
			Wyoming

Some of these states, however, have additional requirements.

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SATURDAY, APRIL 28, 1934

A SPECIFIC METABOLIC FUNCTION OF THE THYROID

Many of the metabolic alterations of hypothyroidism have been well characterized by the results of investigations associating the clinical condition with changes in protein, water and salt metabolism. Although treatment of the disease with thyroid preparations results in a return toward the normal metabolic status, little is known concerning the precise nature of the variations produced in the intermediary processes of metabolism. Exact studies in these instances are of particular value, since a clear understanding of the chemical changes of body constituents may aid in the formulation of a picture of the mode of action of the thyroid hormone.

A carefully conducted study of this type by investigators in Berlin and Marburg [1] has made available a qualitative indication of the course of the altered metabolism in hypothyroid conditions and has followed the changes resulting during long treatment with thyroxine. The particularly striking feature of the urine obtained from hypothyroid patients was the high content of purine bases; this increase involved primarily adenine, an unoxidized purine present at most in minute quantities in ordinary human urine, but in these cases in amounts as great as sixty-four times the normal. The urine also contained the amino acid lysine in the naturally occurring isomeric form. The latter observation was interpreted as additional specific evidence of the inhibition of oxidation processes in hypothyroidism, since the excretion of this amino acid has been reported in other circumstances conditioned by impaired oxidation.[2] Treatment with thyroxine until a distinct clinical improvement was observed resulted in a gradual restoration of the normal urinary picture, the excretion of adenine rapidly decreasing to the usual level; the lysine disappeared from the urine under the influence of the hormone therapy.

As is well known, the greater portion of purine bases is normally transformed by oxidation to uric acid. The marked increased excretion of these purine compounds, particularly the unoxidized base adenine, together with the elimination of an unaltered amino acid, is interpreted as demonstrating the diminished oxidizing ability of the hypothyroid patients. It is the limitation of this function that apparently promotes alterations in the normal metabolic transformations of the purines; hence the investigators were led to consider their observations as an example of hormonic control of definite intermediary reactions of metabolism. However, it is perhaps somewhat early to assign solely to the thyroid gland the regulation of purine metabolism, in view of the fact that it may be possible to detect increases in unoxidized purines in the urine of individuals with a diminished metabolism resulting from some cause other than a hypofunctioning of this endocrine organ. Nevertheless, this suggested concept of the relationship between the thyroid and purine metabolism is of interest; other investigations of this type should produce further interesting information regarding the mode of action of thyroxine and other humoral agents.

1. Flossner, O.; Kutscher, F., and Wittneben, W.: Ztschr. f. physiol. Chem. **220**: 13, 1933.
2. Hoppe-Seyler, F. A.: Ztschr. f. physiol. Chem. **214**: 267, 1933.

A NEW METHOD OF PHYSIOLOGIC RESEARCH

At the beginning of one of the chapters of Claude Bernard's "Introduction to the Study of Experimental Medicine" he remarks:

> Only within very narrow boundaries can man observe the phenomena which surround him; most of them naturally escape his senses, and mere observation is not enough. To extend his knowledge, he has had to increase the power of his organs by means of special appliances; at the same time he has equipped himself with various instruments enabling him to penetrate inside of bodies, to dissociate them and to study their hidden parts. A necessary order may thus be established among the different processes of investigation or research, whether simple or complex: the first apply to those objects easiest to examine, for which our senses suffice; the second bring within our observation, by various means, objects and phenomena which would otherwise remain unknown to us forever, because in their natural state they are beyond our range. Investigation, now simple, again equipped and perfected, is therefore destined to make us discover and note the more or less hidden phenomena which surround us.[1]

In harmony with this conception of medical research the invention of new methods of investigation is one of the most likely aids to progress in the development of knowledge. Usually the expectation of the contributions from novel experimental technics should not be widely heralded until there is a modicum of real accomplishment to its credit. Now and then, however, the enthusiasm for a procedure of promise warrants modest mention. Thus, when physiologists succeeded in extirpating the liver without immediately fatal consequences it was soon evident that real contributions to the understanding of the hepatic functions were near at hand. Again, the ability to separate the thyroids from the parathyroid glands, and the medulla from the

1. Bernard, Claude: An Introduction to the Study of Experimental Medicine, translated by H. C. Greene, New York, Macmillan Company, 1927.

cortex of the suprarenals, gave assurance that new discoveries in hormone physiology were likely to follow.

Somewhat comparable hope of advancement will be awakened by the new method of electrical excitation of the nervous system by remote control that has been developed in the research laboratories of physics at Harvard University and of the department of surgery at the Yale University School of Medicine by Light and Chaffee.[2] It takes one back to the days of laboratory experiments in the courses in physiology in which electrical stimulation of muscles and nerves was effected by the use of wire coils. Changes in the primary circuit, as in opening or closing it with a "key," induced electrical manifestation in the isolated secondary coil, which could readily be applied to exposed irritable tissues. In the procedure a small secondary coil, usually of 2,000 turns of copper wire, is actually implanted in an animal and one or both of its electrodes are taken to excitable centers. The wound is closed and after the animal recovers he can be placed within the magnetic field created by a specially designed primary circuit. The latter is entirely away from the experimental animal; but when the latter is placed within the range of the primary coil, induction currents or "shocks" of the most varied character can be developed at selected localities in the body. Thus, as the investigators claim, the apparatus as designed removes the restrictions of time, anesthesia and restraint from experimental exploration of functions susceptible to electrical excitation. It provides a wide range of control of current, frequency and individual wave contour.

With this apparatus, which functions without moving parts, tests made thus far have produced typical jacksonian attacks from stimulation of the motor area in the monkey; a condition of somnolence after stimulation of the hypothalamic region; contraction of the tongue from implantation of the electrode on the hypoglossal nerve; a copious flow of highly acid gastric juice, and violent peristalsis, from stimulation of the vagus on the lower esophagus. The implanted coils are covered with collodion, and some of these have now remained in place for as long as seven months without evidence of irritation of tissue or of cyst formation. What Light and Chaffee anticipate may be presented in their own words: It is hoped that this apparatus will make possible the study of functions which do not yield to stimulation of short periods but which may respond during experiments in which the excitation stimulates the character of that function and goes on, day and night, without disturbing in any way the habits or activity of the animal. It should be particularly useful in the study of the nervous control of autonomic functions such as sleep, sugar and water metabolism, menstruation, blood pressure, normal and possibly abnormal digestive activity, and temperature control.

2. Light, R. U., and Chaffee, E. L.: Electrical Excitation of the Nervous System—Introducing a New Principle: Remote Control; Preliminary Report, Science **79**: 299 (March 30) 1934.

CREATINURIA AND PHYSICAL FITNESS

The significance of creatinuria is a persistent problem in the story of metabolism. Although the urine of adult males on a creatine-free diet does not contain creatine, that substance is a constant and apparently normal component, along with the always present creatinine, in the urine of either sex up to the age of puberty. In women, of course, creatinuria is a physiologic occurrence, though only an intermittent one. During adult life in both sexes creatinuria may be induced, or increased, by a variety of experimental or pathologic conditions. It is quite usual in starvation. Lately creatinuria has been extensively studied in relation to certain types of muscular dystrophies.[1]

Several years ago, when Powis and Rapier[2] discovered a diminished excretion of creatine during the night, they concluded that the chief explanatory factor appears to be the state of rest of the skeletal muscles associated with the temporary cessation of voluntary control that occurs during sleep. Other investigators have attempted to relate the creatinuria of childhood to the endocrine changes that result in puberty. A recent investigation by Light and Warren[3] at the Lawrenceville School in New Jersey shows that among normal boys on an uncontrolled diet the percentage showing creatinuria remains fairly constant at ages from 14 to 17, drops perceptibly between 17 and 18, and was present in only one out of six boys between 18 and 19. The average creatine excretion for each yearly period declines with increasing age. Light and Warren were impressed by the wide latitude in years among adolescent males, during which creatine may be absent from a twenty-four hour urine specimen of an individual on a normal protein diet. What impressed them most during these studies was the frequent finding of the presence of creatine in one subject and its absence in another, both of whom were approximately the same age, weight and height, on the same diet, and collecting the urine at the same time. The investigators were further impressed with the frequency of a certain lethargy and aversion to physical exercise among the subjects still excreting creatine.

In these studies, as Light and Warren point out, a close relationship between creatinuria and muscular activity in adolescent males is suggested by the definitely lowered creatine excretion among a group of boys on a high protein diet while resting in bed, as compared to the amounts excreted by the same subjects the following day, when attending to their usual school routine of study and exercise and on a normal protein diet. The marked increase in creatine excretion encoun-

1. Magee, M. C.: Creatine and Creatinine Metabolism in Progressive Muscular Dystrophy, Am. J. Dis. Child. **43**: 19 (Jan.) 1932. Harris, M. M., and Brand, Erwin: Metabolic and Therapeutic Studies in the Myopathies, J. A. M. A. **101**: 1047 (Sept. 30) 1933. Reinhold, J. G.; Clark, J. H.; Kingsley, G. R.; Custer, R. P., and McConnell, J. W.: The Effects of Glycine (Glycocoll) in Muscular Dystrophy, ibid. **102**: 261 (Jan. 27) 1934.

2. Powis, F., and Rapier, H. S.: Biochem. J. **10**: 363, 1916.

3. Light, A. B., and Warren, C. R.: Creatinuria Among Adolescent Males, J. Biol. Chem. **104**: 121 (Jan.) 1934.

tered on the first day of muscular activity following a period of confinement to bed due to an illness or injury, and its progressive decrease on each succeeding day, points to the fitness of skeletal muscles to meet the demands of exercise as an additional factor in the phenomenon of creatinuria among adolescent males.

Current Comment

ARE MORE DOCTORS NEEDED?

The evils of overproduction in many fields have been vehemently discussed of late. The spotlight has been turned on surpluses of cotton and corn, but little has been said of the graver menace of excess production of physicians. The Commission on Medical Education in its final report a year ago pointed out that the ratio of doctors to population was increasing. Elsewhere in this issue of THE JOURNAL, the Council on Medical Education and Hospitals presents its annual compilation of the reports of the state boards of medical examiners. In 1933, 5,012 persons were added to the medical profession through licensure, the losses by death for the same period being approximately 3,500. The net gain, 1,500, is about one per cent of the number of physicians actually practicing in the United States. The census of 1930 shows an increase in population during the preceding decade of 6 per cent, or an annual rate of increase that is something less than six tenths of 1 per cent. Since all students of the question agree that the rate of increase is diminishing and that the country is tending toward a stable population, it is evident that the medical profession is increasing faster than the general population and that, unless the states promptly initiate measures to restrict the number of those licensed to practice medicine, a great surplus of unemployed doctors will become apparent. The social implications of such a condition would by comparison render the well known surfeit of agricultural products relatively innocuous.

CULTIVATION VACCINIA

Artificial cultivation of vaccine virus was first accomplished, about twenty years ago, by Steinhardt, Israeli and Lambert.[1] These investigators found that this filtrable agent multiplies (or is multiplied) in symbiosis with viable tissue fragments suspended in homologous plasma. Their simple cover glass technic was of main interest at the time in suggesting the possibility that this virus is perhaps not a fully autonomous vital unit. It suggested that it is possibly an enzyme-like or bacteriophage-like colloidal particle, capable only of symbiotic proliferation. This concept of filtrable viruses is one of the most plausible working hypotheses of the present time. Rivers and his co-workers[2] of the Rockefeller Institute afterward modified the Steinhardt cover glass technic so as to make possible the cultivation of this virus on a large scale. In their final modification, an emulsion of minced chick embryo in Tyrode's solution is used as the culture medium. Rivers and Ward[3] now report that, if transfers to fresh flasks of embryonic suspension are made at intervals of from four to five days, the virus can be cultivated indefinitely. A gradual reduction in antirabbit virulence, however, takes place, the two year old cultivation virus being practically avirulent for rabbits. At any time, however, a restoration of antirabbit virulence can be effected by testicular passage. The antihuman specificity of the cultivation virus, however, apparently suffers little or no qualitative deterioration. Thus far, 118 children have been vaccinated with cultivation vaccinia. Of these, 100 gave positive local pustular reactions. Eight of the hundred were afterward revaccinated with the routine board of health vaccine and found to be refractory. Two children in whom the cultivation virus did not take, however, were afterward successfully vaccinated with board of health calf lymph. The fact that the cultivation virus can be obtained free from bacterial contamination, can be used without the addition of chemical antiseptics, and causes only mild local reactions, with no fever or other objectionable systemic reactions, suggests extensive clinical study. Rivers' data, however, do not suggest its substitution for the more efficient routine calf lymph vaccine. It merely suggests its tentative use as a preliminary specific immunizing agent preparatory to routine vaccination with calf lymph.

1. Steinhardt, Edna R.; Israeli, Clara, and Lambert, R. A.: J. Infect. Dis. **13**: 294, 1913.
2. Carrel, Alexis, and Rivers, T. M.: Compt. rend. Soc. de biol. **96**: 848 (April 1) 1927. Rivers, T. M.; Haagen, E., and Mackenfuss, R. S.: J. Exper. Med. **50**: 191 (Aug.) 1929.
3. Rivers, T. M., and Ward, S. M.: J. Exper. Med. **58**: 635 (Nov.) 1933.

MICRO-ORGANISMS, CAROTENE AND VITAMIN A

Investigations of vitamins seem to have established clearly that these essential dietary factors cannot be produced de novo by the animal organism. The fundamental thesis about the deficiency disorders now designated as avitaminoses is that the body is dependent on exogenous sources for certain organic substances without which it cannot function or develop properly. Sugar and fat can be synthesized readily in certain tissues—not, however, those vitamins with which we are at present familiar. Our complete dependence on food sources for these indispensable compounds has been questioned in view of the possibilities presented by the alimentary bacteria. They are always present in large numbers in the intestinal tract. They perish there readily, so that disintegration of the bacterial bodies can yield familiar nutrients for subsequent digestion and absorption by the host. Evidence is already at hand to show that, in some instances at least, alimentary bacteria correspond to plants in producing vitamin B. With respect to vitamin A the evidence has been negative. Recently, however, it has been demonstrated at the University of Wisconsin[1] that certain micro-

1. Baumann, C. A.; Steenbock, Harry; Ingraham, M. A., and Fred, E. B.: Fat-Soluble Vitamins: XXXVIII. Micro-Organisms and the Synthesis of Carotene and Vitamin A, J. Biol. Chem. **103**: 339 (Dec.) 1933.

organisms can synthesize carotene, a recognized precursor of vitamin A in animal nutrition. Attempts by Baumann, Steenbock, Ingraham and Fred to effect the transformation of carotene into vitamin A by micro-organisms failed. Animals depleted of vitamin A were protected against avitaminosis by feeding dried cultures of the carotene-forming micro-organisms. The effect must have been due to the bacterial carotene. The Wisconsin investigators point out that, if the evidence is acceptable that carotene is actually synthesized by the organisms in question, in this respect these organisms resemble plants more closely than animals, since carotene when present in animals is of exogenous origin. The absence of vitamin A from micro-organisms and their failure to transform carotene into vitamin A likewise associate these organisms with plants, since vitamin A as such has not been demonstrated in a plant material. The similarity in structure of the carotene and the phytol molecules, as well as the fact that carotene always accompanies chlorophyll in plants, has led to the belief that carotene synthesis is in some way associated with chlorophyll activity. Micro-organisms, however, afford an illustration of the fact that the formation of carotene is not dependent on the presence of chlorophyll.

Association News

THE CLEVELAND SESSION

Medical Golfers to Play, June 11, in Eight Events

The twentieth annual tournament of the American Medical Golfing Association will be held at the Mayfield Country Club, Cleveland, Monday, June 11. Thirty-six holes will be played for the fifty prizes offered in eight events. This includes the championship event, which has as its major prize the famous Will Walter Trophy, awarded since 1923 for low gross thirty-six holes. This trophy, designed by Edgar Millar and executed by the Cellini Shop, Evanston, Ill., symbolizes the evolution of medicine. The first handle depicts the age of primitive ignorance, with shaman witch doctor, spells and the invocation of nature gods to cure ailing mankind, from antiquity to 500 B. C. The second handle shows the age of Greek thinkers, bearing the serpents symbolic of Aesculapius, god of medicine —an age of thought and research, from 500 B. C. to 640 A. D. The third handle represents the age of medieval superstition from 640 A. D. to 1500 A. D., with an astrologer, the physician common to the dark ages. The fire of incantation rises behind the figure as he traces a cabalistic sign in the air. The fourth handle depicts the age of modern medical research, from the Renaissance to modern time, with increasing light spreading from a figure symbolic of an enlarging vision. Winners since the cup was placed in competition have been Drs. E. A. Seaforth, San Francisco, 1923; George McKee, Pittsburgh, 1924; Homer Nicoll, Chicago, 1925; S. M. Hill, Dallas, Texas, 1926; George McKee again in 1927; Walter Shelden, Rochester, Minn., 1928; John Loudon, Yakima, Wash., 1929 and 1930; George McKee, 1931; S. M. Hill, 1932, and Mark Bach, Milwaukee, 1933. Dr. Homer Nicoll is president; Drs. Charles Lukens, Toledo, and John W. Powers, Milwaukee, are vice presidents of the association, which has a total membership of 1,110, representing every state in the Union. All male Fellows of the American Medical Association are eligible to membership. A cordial invitation is extended to every medical golfer to write the executive secretary, Bill Burns, 4421 Woodward Avenue, Detroit, for an application blank. An enjoyable day on June 11 will be the result.

MEDICAL BROADCASTS

National Broadcasting Company

The American Medical Association broadcasts on a coast-to-coast network each Monday afternoon from 4 to 4:15 Central daylight saving time (5 o'clock Eastern standard time, 3 o'clock Mountain standard time, 2 o'clock Pacific standard time).

The next three broadcasts will be as follows:

April 30. Science Saves Babies, Morris Fishbein, M.D.
May 7. Hospital Day, W. W. Bauer, M.D.
May 14. Pursuit of Longevity, Morris Fishbein, M.D.

Columbia Broadcasting System

The Association broadcasts on a Western network of the Columbia Broadcasting System each Thursday afternoon on the Educational Forum from 4:30 to 4:45 Central standard time. The next three broadcasts will be as follows:

May 3. Facts or Fallacies, W. W. Bauer, M.D.
May 10. Things Men Fear, Morris Fishbein, M.D.
May 17. Mischievous Misconceptions, W. W. Bauer, M.D.

ANNUAL CONGRESS ON MEDICAL EDUCATION, LICENSURE AND HOSPITALS

Thirtieth Annual Meeting, held in Chicago, Feb. 12 and 13, 1934

(Concluded from page 1308)

DR. G. M. WILLIAMSON, Grand Forks, N. D., in the Chair

JOINT SESSION OF THE COUNCIL ON MEDICAL EDUCATION AND HOSPITALS AND THE FEDERATION OF STATE MEDICAL BOARDS OF THE UNITED STATES

The Privilege of Reexamination in Professional Licensure

BERNARD C. GAVIT, J.D., Bloomington, Ind.: The average of failures at bar examinations, including first timers and repeaters, for the United States for the year 1932 was 55 per cent. That result is rendered more painful by the further fact that ultimately in the neighborhood of 90 per cent of those who took the examinations for the first time will succeed at a subsequent examination in passing and being admitted to the bar. The medical profession is years ahead of the legal profession on the subject of licensure. The reasons are not hard to find. The medical profession has succeeded in eliminating to all practical purposes the commercial medical school. But last year there were 185 organized law schools in this country, and in the neighborhood of 55 per cent of those schools must be classified as commercial schools. They enroll about 55 per cent of the law students. At least ten new law schools were organized during 1933, all of them commercial, making no pretense of meeting any standards.

The medical profession has something more than a vocal belief in its place in society and the professional character of its members. A minimum of learning and character development is actually accepted as an essential point of departure. The bitter truth is that the legal profession is still given to talk. It is confused by the difficulty of actually choosing between its vocal standard, which makes of the lawyer an aristocrat of learning and character, and the vicious American dogma of equality, which makes every moron a potential lawyer. The problem of reexamination is very pertinent, for the bar examination is the only mechanism at present that may possibly filter out some of the undesirables. It is obviously inadequate. The past results, wherein some 90 per cent of all applicants, regardless of their original preparation, have succeeded in finally passing, demonstrate that the minimum of a formal legal education required by the best of bar examinations is indeed a minimum, for it can be acquired successfully by almost any one regardless of his scholastic and social background, if he is persistent.

Medicine and law again part company, for medical training and licensure include clinical experience. A very few states require a short clerkship for final admission to the bar, usually

only after the formal bar examination. Indeed, it seems that law schools will never be able to finance and conduct any extended clinical experience for law students on a parity with medical school training in their own hospitals, although a slight beginning has been made in a few schools. The practical difficulties seem insurmountable, and indeed the obvious solution seems to be a law office training following formal instruction supervised by the schools.

The best of bar examinations is an inadequate tool in solving the problem of admission to the bar. Any ex post facto determination of a candidate's fitness is unjust to the candidate; any strictly formal examination is unjust to the public and the bar. The commercial law school must go. But in the meantime we must struggle with the bar examinations and make them as effective as possible. The problem is immediate. The most effective immediate prophylactic is a limitation on the number of reexaminations permitted for each applicant. About one fourth of the states now have some such limitation, although the number of repeater examinations allowed is too high, being often as many as six or more. There is no good talking about law and medicine being professions unless one means that ideals of conduct forsake the immediate personal gain for a social value. A great many students are improved on by the sales talk of commercial schools. But the fact remains that one need not be too much concerned over those whose powers of perception are somewhat limited and who ultimately seem satisfied with a mediocre training. With good grace we can draw the line against the applicant who fails three times. A lawyer is in no position to give much advice to the physician on this subject. Medical standards for admission to examination for a license are so high that the problem of reexamination after failure is relatively unimportant. I suppose, however, that there are some who could still profitably be finally eliminated by the state medical examinations. There would seem to be no harm if medical reexaminations were limited to two. Certainly in the legal field it is a necessary expedient, for until the legal system turns to the elimination of the poorer grades of lawyer material through the standard schools some elimination must be effected through the state bar examinations. At present the elimination is negligible. Our final objective must be the elimination of the boards themselves through the imposition of the proper standards at the beginning rather than the end. The selection and training of professional men must ultimately be left to the schools, under proper supervision by an intelligent authority. In the meantime, tangible but indirect benefit can come by an early elimination of the repeater.

DISCUSSION

DR. G. M. WILLIAMSON, Grand Forks, N. D.: Twenty-five years or more ago, state boards of examiners in medicine were having a similar experience as the state bar boards are having today. The commercial medical school is of the past, and when the American Bar Association adopts a similar plan and organizes a council of the association to formulate and direct uniform courses of study, improvement will quickly follow. When state medical boards insisted that applicants for license must be graduates of an approved college and then that the college must be in class A, requiring at least two years in a college of liberal arts, commercial medical schools disappeared; in a similar manner, graduates of commercial law schools would find no place to go and the schools would cease to exist. State medical boards are bothered but little by repeaters. I attribute that to the uniform training medical students receive. When the American Bar Association adopts a plan similar to that which has worked satisfactorily for the medical profession, insisting on a high standard of preprofessional and professional training in approved colleges, repeaters will eliminate themselves. To a large extent the solution of this problem by the American Bar Association lies at the door of the state bar boards. If they would insist after a third failure that a candidate could not reappear at a fourth examination unless he produced evidence of a year's study in a college approved by the state bar board there would be fewer persons admitted to the bar and the quality of men practicing before the bar would be of a higher standard.

DR. IRWIN D. METZGER, Pittsburgh: In Pennsylvania we have almost come to the point where we say that the state board examination is useless. We have been so careful in the examination of schools and hospitals, in their approval, as to satisfy us as members of the board that candidates, when they are admitted to the examination, should pass. If we approve the schools from which they were graduated, if we approve the hospitals in which they have had their clinical training, should we not accept them as being qualified to practice medicine? We say, therefore, after the second examination, "You cannot take a subsequent examination unless you have had a year's work which shall be outlined by the board. It may be in a hospital, it may be in a medical school, but it must be specific. After you have had the additional year, you have another chance to take the examination and may repeat the second examination"—that means four of them, with one exception. We have what we call a practical examination in Pennsylvania, to which we admit candidates for various reasons who are not eligible for licensure by endorsement. If a person has been out of medical school for ten or more years, he is admitted to the practical examination. The main purpose is to catch exploiters that might have been traveling from place to place. In that examination, no second examination is given at all. Under the direction of the attorney general we are compelled to admit such applicant to a written examination for the second examination. Obviously, they seldom pass. Several have attempted to pass. The whole point is that it becomes in medicine a matter of assurance that these particular courses they have taken have actually "taken" with them, and that they have become trained adequately in medicine. The only excuse we have for examination in Pennsylvania is to see whether these people can apply practically what they have learned in the medical schools. Our questions are all based on that.

DR. T. J. CROWE, Dallas, Texas: Two examinations are given in Texas if a candidate desires it; that is, the examination is bisected. We give what we call the technical subjects after the completion of the sophomore year in the medical college, while those subjects are fresh in mind. I believe that the state board should be a permanent organization and conduct examinations all the year round and give plenty of time to them. We had in our state an attempt on the part of the University of Texas to eliminate its graduates from the state board examination. They believe that a university supported by the state and passing on the qualifications of their graduates should be sufficient to entitle them to practice in the state.

DR. C. H. EWING, Larned, Kan.: In Kansas we permit no applicant to take the examination except that he be a graduate of a class A medical school. So why should we have these failures? We do not have them. It is a reflection on us if we do have failures. However, that does not apply to all of these boards, for they are compelled by the state laws to examine a different class of applicant.

DR. FRANK M. FULLER, Keokuk, Iowa: I suggest that we begin raising the standard of entrance rather than the standard of final examination. A good deal was said yesterday about the purpose of medical education. Some time ago I heard a definition of the purpose of education. The purpose of education is to train the mind and the will to do the thing that is to be done, at the time it should be done, whether you want to do it or not.

DR. GILBERT FITZ PATRICK, Chicago: Did I understand the speaker to say that candidates in Iowa are examined by number? I would like to say that we ought to know more about the candidate. You are proposing to grant the man a franchise equal to his citizenship. I should like to see the biography of the man included in his application, so that I would know something about him.

DR. FULLER: We have all that biography in Dr. Bierring's office, but in the examining board we are absolutely indifferent. We know that, if he has an application in, he is qualified to take the examination.

DR. LANGLEY PORTER, San Francisco: If the state boards protect the communities from men who are incapable to practice, they are doing their duty. They should not worry whether a man is a high grade student or a low grade student. That is the business of the medical schools.

BERNARD C. GAVIT, J.D., Bloomington, Ind.: I suppose it is obvious that the lawyers are at least twenty-five years behind the medical profession when it comes to the subject of licensure. Probably the best argument we have for any improvement is that that is a reasonably safe distance behind, even for a lawyer. There is one situation which, so far as a lawyer is concerned, is not humiliating. In Pennsylvania they have a system with their state board which I think approaches the ideal, and it is the only one in the country. They require the student to register with the state board when he starts his prelegal training, when he enters college, and they appoint a member of the bar, who supervises that man's prelegal education and his education through law school, so that when he comes up for examination they have a check on him, and if he should have been eliminated he is eliminated long before he gets into the law school.

Résumé of the History and Present Application of Medical Licensure in the United States

DR. J. N. BAKER, Montgomery, Ala.: As one reviews the evolution of licensure as applied to the healing art, a spirit of altruism and what seemed best for the public weal largely dominate the picture. Orthodox medicine sponsored and furnished the leadership for the creation, in the various states, of machinery with which to measure all who assayed to treat diseases by any method whatever. Thus came into being in the states the medical licensing boards. Practically all of these laws more clearly defined the basic fact that the application of any mode of treatment to the human body must rest on at least an elementary knowledge of the structure of its component parts, as well as the changes that may take place as a result of disease. This attitude served to strengthen our position that the protection of the public interest is paramount and the sole justification for regulative laws, and also to show to lawmakers more clearly that any restrictive legislation on their part must be founded on the public weal. The second important service contributed by organized medicine was the effort put forth to right its own defects. In 1900, this country boasted 160 medical schools, some of which were more frankly commercial than scientific, with a few that were notoriously unsavory. Today it has but 77; in 1905 only 5 of the 160 exacted any premedical college training, whereas today every recognized medical school requires at least two years of college work and several demand a college degree for entrance to the study of medicine.

A questionnaire was sent to all licensing boards. On these returns, together with other available material, the succeeding comments on the present status of licensure are largely based.

Alabama is the only state having but one board passing on all applicants for the healing art. The personnel of the board is selected by organized medicine and is 100 per cent regular or orthodox. The legislature of Alabama in 1875 entrusted to the organized medical profession of the state the direction and control of both public health and medical licensure as well as the enforcement of its medical practice act. Thus far it has withstood all assaults.

At the beginning of this century there were in operation forty-one homeopathic and twenty-four eclectic schools, twelve of which were located in the state of Ohio alone. At present the list of the medical schools approved by the Council on Medical Education and Hospitals bears the names of but two such schools. Fifteen states make provision on their boards for one or both of these groups. Has not the time arrived for these boards to adjust minor internal differences and present to the public and to legislatures a solid and united front for orthodox medicine?

Osteopathy received its legal christening in Vermont in 1896 as a separate school of the healing art. The exaggerated importance attached by this school to vertebral displacement and nerve impingement seems to have caught the popular fancy and the grotesque mimicry of its manipulative therapy is seen to form the sole basis for numerous heterodox systems having no scientific leg on which to stand. These mixed boards represent compromise measures on the part of orthodox medicine. At present there are fifteen such mixed boards, most of which are meeting their problems in a harmonious manner.

There are eighteen states having separate boards for the various schools practicing the healing art. Here is the first line of defense created by orthodox medicine for medical licensure battered down before the onrush of the followers of heterodox healing. It may be that an appreciation of the necessity for minimal scientific training, in states now having multiple boards, has led to the more recent experimental venture of basic science boards, the first of which were established in Wisconsin and Connecticut in 1925. There are now nine states operating under some plan whereby a "base line" of the fudamental sciences is set for all who propose to practice the healing art. Sufficient evidence has not yet accumulated to justify final conclusions regarding this newer venture. A final word concerning the National Board of Medical Examiners—the aristrocrat of medical licensure and the fulfilment of the goal fixed by orthodox medicine for a single yardstick in the hands of one scientifically trained board: The fact that practically all states have given recognition to the diplomates of this national, unofficial board attests appreciation of the work being done within the ranks of organized medicine to elevate the standards of medical practice.

Within its own ranks, organized medicine must continue its purifying activities until complete unison is attained. This should not be difficult. As the standards are lifted, the unfit will fall by the wayside.

Reciprocal Agreements

DR. JOHN R. NEAL, Springfield, Ill.: Thirty-six of forty-four states that replied to the questionnaire practice some form of reciprocity. Florida does not reciprocate, because it is a tourist state and lies too near the center of population. Colorado, Connecticut, Idaho, Massachusetts, New Mexico, Rhode Island and Vermont are the other seven states that do not enter into reciprocal agreements. Colorado grants licenses on satisfactory credentials and by examination. Connecticut requires an examination of all applicants except diplomates of the National Board of Medical Examiners and physicians who have been in active and reputable practice in the United States for five years. Idaho does not enter into reciprocal agreements but judges each applicant on his merits. Massachusetts has no legal authority to enter into reciprocal agreements. New Mexico licenses by endorsement of credentials on the theory that reciprocity involves too many obligations. Rhode Island has not participated in reciprocity for two reasons: a lack of clear legal authority and lower standards for licensure in those states which by location would make of them the most convenient and logical to participate in reciprocity. Vermont does not like the reciprocity method of licensure. That state endorses the certificates of applicants from all states that have standards equal to her own. Among the thirty-six states that participate in reciprocity, the practice is even less uniform.

Six states, Arkansas, Connecticut, Minnesota, Nebraska, Oregon and Wisconsin and the Distrist of Columbia, have a basic science law. Several other states, notably Texas, have laws that function in a way that achieves practically the same purpose. Arkansas requires the basic science examination of all graduates of medical schools who apply for reciprocal licensure. The other states modify this requirement in some cases. Minnesota, for example, accepts certificates of registration in basic science requirements.

An oral or written examination is not required of acceptable reciprocants in twenty-seven states.

Kansas and Nebraska charge applicants whatever fee the reciprocating state exacts from licentiates of their boards. The fee in other states ranges from $20 to $100.

The practice of medicine is a stable calling. The nature of medical practice discourages a shifting from state to state. Only the strongest motives can persuade the successful physician to give up his practice and begin again in a new locality. Daily the public learns more about the possibilities of the treatment and prevention of disease and becomes more exacting in its demands of skill and efficiency from the medical profession.

Illinois is one of the great population centers of the country. It attracts the migratory physician. Americans unqualified to enter medical schools in this country can acquire degrees in Europe and return to the United States with glowing credentials bearing the seal of illustrious institutions. Thirty-five states in this country have multiple examining boards that include respectively chiropractic, naturopathic, osteopathic, homeopathic,

eclectic, basic science and others. Some states require a year's internship and some do not.

These are important things to consider in granting a license for the practice of medicine. It is felt that the qualified physician would welcome a test of his knowledge. For these reasons Illinois requires a clinical examination of all applicants for license. Candidates in convenient groups are taken to the ward, the surgical quarters, the eye, ear and nose infirmary, and the diagnostic laboratory of a general hospital. They are asked to diagnose the conditions and prescribe appropriate treatment of the patients and to recognize laboratory specimens. This procedure, it is felt, emphasizes, in the requirements for licensure, the interests of the public.

The ideal in reciprocal agreements would be uniformity. In the absence of that probability, each state must continue to set up its own requirements. The interests of the public demand an emphasis on the practical ability of the candidate rather than on the character of his credentials.

DISCUSSION ON MEDICAL LICENSURE AND RECIPROCITY

DR. P. E. BLACKERBY, Louisville, Ky.: Dr. Baker reveals many reasons for any lack of conformity and coherence in our present licensure laws. I should like to add that there is a difference in point of view between the profession and the public, notwithstanding the legal construction of licensure purposes. The people think in terms of adequate and economical service while the profession, in the main, thinks of the scientific quality of service. On the one hand, the medical schools and organized medicine are crying for higher standards, and, on the other, the public too often decries the present high standards. Licensing boards furnish the battleground. There is no question that reciprocal relationships between states have had a beneficent influence. The Federation of State Medical Boards serves a fine purpose in keeping the medical profession unified in its ideals toward legitimate practice. As to the cults, although it is only the orthodox medical profession that can give scientific determination as to their value, we cannot deny the right of the public to give them a trial. Fortunately, their own limitations shorten their period of popularity. I am optimistic enough to believe that our legislators will continue to recognize that contributions to the relief of human suffering and the prolongation of life in the last century are products of medical science rather than the offspring of mysticism and cultism.

DR. HAROLD RYPINS, Albany, N. Y.: Any one who had no knowledge of licensing boards in this country, after hearing Dr. Baker's paper, would certainly think that there was an infinite number of ways of attempting to do the same thing. When I started in this work I thought that the most desirable thing was to have a uniform type of licensing boards. I have changed my opinion. Apparently the different types of boards that have originated in different jurisdictions arose out of the needs of those jurisdictions. As a member of the National Board of Medical Examiners I am glad to see its influence spread, but I feel that it is not desirable, even if it were possible, to have national licensure. The public conception of what is the proper practice of medicine varies so much throughout the United States that I believe it is impossible to arrive at any common denominator except the very lowest one. I think that from a practical point of view the state is about the proper administrative unit for the carrying out of the medical practice acts. The point raised by Dr. Neal that there are three interests in the administration of the medical practice acts should be emphasized: the interests of the board, of the candidates, and of the public. The paramount interest must be that of the public. The state boards are legal bodies. They are appointed as part of a government, and their duty is primarily to the public of the state to see that only properly qualified practitioners may practice. A state board's sole duty is to pass on the ability of a candidate to practice. Certain individuals coming from one state to another suffer because the boards in the state where they were originally licensed also license students from inferior schools. It is wiser not to recognize a state board that examines from inferior schools, such as in Massachusetts, even though an injustice may be worked on Harvard graduates. In the long run, the public would be better protected in that way. Dr. Neal raised an interesting question when he said it might be a good thing to use the transfer of a man from one state to another as a time to reexamine him. That is a good idea, but I am not sure that it would be altogether just. When a man begins practice he should know something about the general body of medicine, but if he has been out ten years and has been doing good work in gynecology it is probably not reasonable to examine him in otolaryngology. This will, to a certain extent, I hope, be compensated for by the examinations now given by the specialty boards. I think it was President Jordan of Stanford, who was an eminent ichthyologist and was noted for the fact that he could recognize the name of any student on his campus. As he became more experienced, he would forget a student's name. Finally he recognized only a few. Some one asked him why he no longer remembered the names of Stanford students. He said, "It is like this: I find that every time I remember a student's name I forget the name of a fish." I believe that every time a man really learns more about psychiatry or otolaryngology or gynecology or cardiology in the field in which he is concentrating, he is doing wisely to forget some of the things that he had to learn when he took his first licensing examination.

DR. FREDERICK ETHERINGTON, Kingston, Ont.: We have had in Canada since 1912 the Canadian Medical Act, the chief function of which was to set up a board to conduct an examination that would qualify the candidate in any province of the dominion. Our experience has been wholly favorable, so that one by one the provinces are eliminating their own examinations and accepting that of the Canadian Medical Council. The practitioner takes the license and registers with the provincial council and is still under that council in matters of behavior. In that country the one examination for all practitioners is the one that is coming into vogue. I do not speak with any authority for the licensing boards, but I thought that our experience might be of benefit in the discussion.

DR. H. M. PLATTER, Columbus, Ohio: We seem to be passing at present through the period of trial and error. There are a great many things in each one of our administrations which ought to be eliminated. I believe that reciprocity in its essence is the practical application of the Golden Rule, the doing to others what we would have them do to us. I agree that the licensure of an older man by reciprocity is quite another thing. There is quite a percentage of physicians who go to seed after graduation, and if they are unfortunate enough to have to move to another state, perhaps it is well that the licensing boards should look them over. In addition to the practical examination there should be a searching questionnaire sent out concerning the applicant, particularly to his county medical society and to the medical members of the community in which he practiced. We should, through the Federation and the Council and the medical college association, get together to discuss the barriers that are interposed in the several states and attempt to get closer toward uniformity.

DR. W. SCOTT NAY, Underhill, Vt.: Vermont endorses the certificates of all the states which have requirements and standards equal to our own, and that includes New York.

Medical Licensure in Latin America: Preliminary Report

DR. WILLIAM D. CUTTER, Chicago: I am presenting this morning only briefly a preliminary study which is based largely on the laws of those countries and the legal requirements with regard to licensure. For the sake of convenience I have used the term "Latin America" to include those countries of North America and Central America, the West Indies and South America in which French, Spanish or Portuguese is the common language. In the Spanish and Portuguese speaking countries of America the right to practice medicine is based on the possession of a medical degree conferred by a legally recognized university. Generally the university degree "physician and surgeon" has the same effect as a state license in this country. Any inquiry, therefore, into the requirements for medical practice in Latin America involves an analysis of the conditions under which the medical degree is obtained.

In the countries to the south of us there are forty-nine schools of medicine, distributed as follows: Mexico, 11; Cuba, 1; Haiti, 1; Dominican Republic, 1; Nicaragua, 2; Guatemala, 1;

Honduras, 1; El Salvador, 1; Brazil, 9; Argentina, 4; Chile, 3; Colombia, 3; Ecuador, 3; Bolivia, 2; Venezuela, 2; Dutch Guiana, 1; Paraguay, 1; Peru, 1; Uruguay, 1.

It is impossible to formulate any generalization that holds literally true for each of the nineteen countries and forty-nine medical schools, but certain comments are generally applicable.

In the first place, the preliminary education necessary for matriculation in the faculty of medicine is almost universally the completion of the secondary school course, with or without the bachelor's degree. The "liceo" resembles the French secondary school, the "lycée." It may be accepted as extending beyond the four year high school of the United States. The courses, however, lean strongly toward the classical and humanistic studies, while the natural sciences receive decidedly less emphasis. Instruction is chiefly by lecture and demonstration. Laboratory facilities for individual experimentation are not generally found. Following the Spanish custom, large numbers of students enroll in the faculty of medicine merely as a means of securing a liberal education and a university degree without any thought of ever engaging in practice. It is possible that the character of the instruction is in some measure adjusted to the needs and capabilities of those students who lack a professional aim. Where classes are large, instruction is likely to utilize more extensively didactic methods. In consideration of the marked differences in the preliminary educational requirements and methods of instruction, it is suggested that the state medical boards composing the federation would do well to defer a definite evaluation of credentials from Latin American countries until more complete information is available.

DISCUSSION

DR. FREDERIC W. SCHLUTZ, Chicago: The student body in the medical schools of Latin American universities are inordinately large in some of the universities. This is particularly true of Rio de Janeiro, Montevideo, Buenos Aires, Santiago and Lima. The student body divides into two groups: a comparatively small group, which is seriously seeking a medical education, and a much larger group, which uses medical education more as a medium to provide a cultural background. The sometimes enormous size of the student body influences the type of teaching that is offered. Practically without exception the Latin American university clinics have a wealth of fine clinical material. The hospitals are large, many of them exceeding 1,000 beds, and the outpatient departments are even larger, all of the material, almost without exception, being free cases. This vast amount of material cannot be adequately handled for thorough teaching. There are economic limitations and particularly limitations of lack of adequate staff. Teaching is almost precluded with these large groups and, it was my observation, almost nonexistent except to the small intimate group composed largely of the house officers. This throws the greater emphasis on didactic teaching, the amphitheater clinic and the outpatient teaching. This is exceptionally fine in most of the Latin American universities. It is the best of the medical teaching in Latin America, especially as exemplified in the French, Spanish and Italian schools. The medical libraries in some of the universities were far more complete in current journal material than they are in many North American universities. Their pathologic collections and the museums of pathology were excellent. Their laboratories, except possibly the laboratories in some of the universities, in serology and in tropical medicine, were decidedly inferior to those of other countries. In comparison with the size of their hospital clinics, the staff and the house officers and assistants were surprisingly small. The junior men and house men who hold these positions have unexampled opportunities for fine clinical training, but the numbers who are so fortunate as to secure these positions seem to be very small, and at the clinics that I visited were limited almost entirely to natives of their own countries. I had the impression that the attendance of foreign students at the universities is relatively small. The language difficulty is probably the chief factor. One needs to know Spanish, French or Italian. Unless the regulations for foreign medical men have changed in recent years, it is not easy for the foreign practitioner to be registered in Latin American republics. A few years ago a four-year residence period was required of the foreign student, and then he had to take his examination for licensure in Spanish.

DR. T. J. CROWE, Dallas, Texas: I am from a border state. We frequently have Spaniards coming to us for legalization, and we have great difficulty in determining their qualifications, for the reason that the Mexican government will not sign an affidavit in English. I believe that either the Federation of State Medical Boards or the Council on Medical Education and Hospitals should ascertain the standing of the colleges, not only of Mexico but of Central and South America, and symbolize them in some way in the handbook of rules and regulations of state boards, so that we who cannot speak Spanish will know which of those institutions are really worthy of consideration for examination. We take a foreigner only on examination. They have overnight revolutions in those countries, and the fellow who was at the head of the institution yesterday is exiled tomorrow and is in Texas looking for a license; when his crowd gets back in, maybe the next week, he goes back. We cannot tell anything about the individual half of the time.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ARKANSAS

Clinical Meeting.—The tenth annual meeting of the Fort Smith Clinical Society was held, March 22, under the auspices of the staffs of St. Edward's Mercy, St. John's, and Sparks Memorial hospitals. The morning session was given over to clinics. The following physicians presented papers in the afternoon:

James H. Buckley, Recent Developments in the Newer Therapy of the Ear, Nose and Throat.
Davis W. Goldstein, Common Skin Diseases.
Arthur F. Hoge, Immediate Treatment of Extensive Burns.
Herbert Moulton, Relationship of Ophthalmology to the Practice of Medicine.
Arless A. Blair, Coronary Heart Disease and Angina Pectoris.
Curtis H. Kennedy, Evils of Present-Day Prescription Writing and Dispensing.
Paul C. Schnoebelen, St. Louis, Correlation of Clinical and X-Ray Findings in the Diagnosis of Gastro-Intestinal Lesions.
Leith H. Slocumb, St. Louis, Rectal Conditions: Diagnosis and Treatment.
Rutherford B. H. Gradwohl, St. Louis, Blood Development and Schilling Methods.

CALIFORNIA

Nutritional Survey.—The San Francisco Health Department inaugurated a six weeks survey of the nutritional status of children whose families are on relief, March 1. Height and weight and an estimation of posture and muscle tone are included in a complete physical examination. Physical defects are recorded and efforts toward correction of these are made through the parents and school health authorities. A second survey will be made in about six months, in which it is hoped to determine whether there is an increase or decrease in the nutritional status in the population as measured by the health of children.

Society News.—A clinical program made up the meeting of the San Francisco County Medical Society, April 10, with the following members of the staff of Stanford University School of Medicine, San Francisco, among others, as the speakers: Drs. Leo Eloesser, George D. Barnett, Karl L. Schaupp, L. Henry Garland and David A. Wood. Dr. Alfred Bielschowsky, director, University Eye Clinic, Breslau, Germany, gave a series of four lectures before the society, April 11-14. ——Dr. William M. Gratiot, Monterey, addressed the Monterey County Medical Society, February 2, among others, on "Exfoliative Dermatitis." ——At a meeting of the Orange County Medical Society, February 6, Dr. W. M. Anderson, Los Angeles, spoke on "Physical Diagnosis of the Heart." ——Among others, Dr. Albert G. Bower, Glendale, discussed "Scarlet Fever and Its Treatment" before the Santa Barbara County Medical Society, February 12.——The Sonoma County Medical Society heard Drs. Harry E. Alderson and Charles Albert Shumate, San Francisco, discuss "Skin Diseases and Their Treatment," February 8.——Dr. Harry Clare Shepardson, San Francisco, addressed the Stanislaus County Medical Society, January 12, on "Treatment of Diabetes and Diabetic Coma."——A paper on "Pelvic Pain" was presented before the

Tulare County Medical Society, February 4, by Dr. Robert Glenn Craig, San Francisco.——Dr. Jacob C. Geiger, director, San Francisco County Health Department, was chosen president-elect of the Northern California Public Health Association at its annual meeting in Stockton, March 17, and Dr. Ira O. Church, Oakland, health officer of Alameda County, was elected secretary.

COLORADO

Memorial Lecture.—Dr. Paul J. Hanzlik, professor of pharmacology, Stanford University School of Medicine, San Francisco, gave the first annual Phi Rho Sigma Memorial Lecture at the University of Colorado School of Medicine, April 16, on "Novel Antitoxic and Protective Action of Dyes." The lecture is sponsored by the local chapter of the fraternity in remembrance of deceased alumni.

Society News.—Dr. Daniel R. Higbee, Denver, spoke on "Relationship of Focal Infection to Pyelonephritis" before the Larimer County Medical Society, recently, in Berthoud.——Speakers before a recent meeting of the Mesa County Medical Society in Grand Junction were Drs. Donald M. Maxwell and Frank J. McDonough, Grand Junction, on "Use of Endocrines in the Treatment of Gynecological Conditions" and "Abdominal Diagnosis in Children," respectively.——At a meeting of the Pueblo County Medical Society, recently, Dr. Lester L. Ward discussed digitalis.

CONNECTICUT

Progress in Tuberculosis Survey.—The number of roentgenograms taken in the school survey for tuberculosis cases in Connecticut between February 1 and 19 was 5,701, bringing the total to 44,131. The work has been completed in 116 towns and is under way in thirty-eight others, leaving fifteen, or less than 10 per cent, of the 169 towns in the state that have not participated. The number of plates made represents slightly more than one third of the enrolment in the public schools, the bulletin of the state health department reports, and, since some of them were taken in parochial schools, the number would be a little less than one third of the total school population. When public funds were used for payment, a larger proportion of children had roentgenograms taken.

DISTRICT OF COLUMBIA

Medical Bills in Congress.—H. R. 9202, introduced by Representative Norton, New Jersey, proposes to authorize the commissioners of the District of Columbia to borrow from the Federal Emergency Administration of Public Works $20,000,000 for the acquisition, purchase, construction and development of a tuberculosis hospital in the District of Columbia, for an extension of or an addition to the Gallinger Municipal Hospital, for a sewage and refuse-disposal plant, and for other purposes. H. R. 9089, introduced by Representative Smith, Virginia, proposes to confer police powers on the health officer of the District of Columbia, his deputy, assistants, agents and inspectors, including sanitary and food inspectors, milk and dairy inspectors and dairy farm inspectors.

Group Hospitalization.—The Medical Society of the District of Columbia has approved a plan for group hospitalization on the recommendation of its committee on medical economics. Through the Hospital Service Association, hospital care will be furnished up to and including twenty-one days for each contract year at a cost of $9 for each subscriber. An enrolment fee of $1 is also charged. If additional attention is required, the subscriber will be given a 25 per cent discount from regular hospital charges for similar accommodations. Under the contract, this care means bed and board, general nursing care, use of the operating room, surgical dressings, ordinary medication, routine laboratory examinations and other customary routine care, and obstetric cases after the contract has been in existence ten months. The benefits offered shall not include the services of the subscriber's attending physician or surgeon, roentgenologist, pathologist, physical therapist, anesthetist, special nurses, or their board. To be eligible for the plan, the subscriber must be under 65 years of age, in sound health, and must have been regularly employed for at least two months in an occupation approved by the Hospital Service Association. A hospital must be approved by the Medical Society of the District of Columbia, must not engage in the corporate practice of medicine and must bind itself to remain in this hospital group only, while a member of the association. Any accumulated surplus will be used to reduce the cost to subscribers or to provide them with hospitalization over a longer period. Hospitals participating in the plan include Emergency, Garfield, Providence, Georgetown, Sibley, Columbia, Episcopal Eye, Ear and Throat, George Washington and Homeopathic. Casualty Hospital had endorsed the plan but, when this report was received, was unable to take action until the next meeting of its board.

FLORIDA

State Medical Meeting at Jacksonville, April 30-May 2.—The sixty-first annual meeting of the Florida Medical Association will be held at Jacksonville, April 30-May 2, with headquarters at the Mayflower Hotel, and under the presidency of Dr. William M. Rowlett, Tampa. Dr. Howard A. Kelly, emeritus professor of gynecology, Johns Hopkins University School of Medicine, Baltimore, will speak Tuesday on "Readjustments in Surgery and Medicine." Other physicians participating in the program are:

John S. Helms Jr., Tampa, Surgical Management of Thyrotoxicosis.
Julian E. Gammon, Jacksonville, Arthritis.
Mathew Jay Flipse, Miami, Treatment of Agranulocytosis with Yellow Bone Marrow.
Arthur H. Weiland, Coral Gables, Fractures of the Elbow.
Gaston H. Edwards, Orlando, A Perineorrhaphy.
Kenneth A. Morris, Jacksonville, Surgical Treatment of Pulmonary Tuberculosis.
Bundy Allen and John R. Boling, Tampa, Diagnosis and Surgical Management of Gastric and Duodenal Lesions.
Orion O. Feaster, St. Petersburg, The Roentgenologist as a Consultant in Acute Abdominal Conditions.
Joseph S. Stewart Jr., Miami, Intestinal Obstruction.
Lloyd J. Netto, West Palm Beach, Fibroid Tumors.
William H. Spiers, Orlando, Tuberculin in the Treatment of Arteriosclerosis.
Louis Iverson, Pensacola, Recent Progress in Aviation Medicine.
John S. Tuberville, Century, Clinical Nature of Malignancies and the Principles of Treatment.
Ralph N. Greene, Jacksonville, Suggestions as to the Care of Brain Injury Cases.
Paul Easton, Jacksonville, Action of Quinine on Malaria.

Entertainment will include a golf tournament, luncheons, fishing, a smoker and the association dinner. Other societies convening during the annual session are the Florida Railway Surgeons Association, the Florida Society of Dermatology and Syphilology, and the woman's auxiliary of the state medical association.

ILLINOIS

State Tuberculosis Meeting.—The twenty-fifth annual meeting of the Illinois Tuberculosis Association will be held at the Hotel Emmerson, Mount Vernon, April 30-May 1. The tentative program is as follows:

Dr. Carl A. Hedblom, Chicago, Thoracic Surgery, with Special Reference to Thoracoplasty.
Dr. Henry C. Sweany, Chicago, Pathological Aspects of Tuberculosis.
Dr. David O. N. Lindberg, Decatur, Use of Tuberculin and X-Rays in Diagnosis of Early Tuberculosis.
Dr. Robinson Bosworth, Rockford, Home Treatment of Tuberculosis.
Dr. Maxim Pollak, Peoria, Recent Developments in the Use of Artificial Pneumothorax.

At the banquet, the speakers will include Drs. Edward S. Murphy, Dixon; Frank J. Jirka, director, state department of health; Harold M. Camp, Monmouth, and Henry Kennon Dunham, Cincinnati. Tuesday, Child Health Day, will be given over to a specially arranged program on the health of children.

Chicago

Hospital News.—A gift of $600 was recently given to the University of Chicago by Mr. and Mrs. Robert V. Merrill to establish a memorial in honor of their son. According to the conditions, $400 of the original $600 shall be invested by the university, the income to be expended in behalf of children who are patients of the Bobs Roberts Hospital or clinic, as gifts or loans, without interest, to their parents or guardians when they are unable to provide supplementary care.

Society Disapproves of Radio Advertising.—The exploitation of drugs, preparations and so-called cures over the radio is viewed with disfavor by the Chicago Medical Society, according to a resolution unanimously adopted by the council, April 10. The symptoms and conditions for which these preparations are recommended frequently are indications of serious conditions calling for careful study by a qualified physician. It was further resolved that physicians request their patients to cooperate in sending protests to the Federal Radio Commission and to broadcasting stations against misleading and unwarranted radio medical advertising.

Society News.—The Chicago Urological Society was addressed, April 26, by Drs. Herman L. Kretschmer on "Resection of the Kidney"; Frederick Lieberthal, "Perirenal and Peripelvic Fibrolipomatosis and Its Relation to Replacement Lipomatosis," and Aloysius J. Wochinski, "An Evaluation of Serial Pyelography."——Dr. Dallas B. Phemister discussed "The Recovery of the Ancient Medical Manuscripts During the Late Middle Ages" before the Society of Medical History of Chicago, April 25; Dr. Clarence A. Earle presented "A Sketch of the

Life of Dr. John A. Kennicott," and Dr. James E. Lebensohn, "1934—The Semicentenary of Local Anesthesia." —— At the meeting of the Biological Photographic Association, April 24, Dr. Max Thorek, among others, discussed "Photography in Medicine and Surgery."

IOWA

Society News.—Dr. Walter E. Anthony, Ottumwa, will address the Wapello County Medical Society, May 8, on "Dyspnea as a Diagnostic Symptom." Dr. Ralph J. Selman, Blakesburg, discussed "Early Frontier Medical Experiences" before the society, April 17. Drs. Fred Moore and Dennis H. Kelly, both of Des Moines, addressed the First Councilor District meeting in Charles City, April 3, on "Correlation of Child Health and the State Department of Health" and "Treatment of Infectious Diseases in Children," respectively.

State Medical Meeting at Des Moines, May 9-11.—The eighty-third annual session of the Iowa State Medical Society will be held at Des Moines, May 9-11, with headquarters in the Hotel Fort Des Moines, and under the presidency of Dr. Charles B. Taylor, Ottumwa. Guest speakers and their subjects are:

Dr. Roy Wesley Scott, Cleveland, Syphilis as the Cause of Heart Disease.
Dr. Verne C. Hunt, Los Angeles, Surgical Lesions of the Stomach and Duodenum.
Dr. John J. Shea, Memphis, Relationship of Otolaryngology to General Medicine.
Dr. Rosco G. Leland, Chicago, Some Causes of Professional Unrest.

The oration in medicine will be given by Dr. George B. Crow, Burlington, and the oration in surgery by Dr. Edward M. Myers, Boone. Dr. William E. Ash, Council Bluffs, will be the toastmaster at the annual banquet, Thursday evening, when Dr. Taylor will deliver the presidential address on "Who Are Graduates in Medicine?" Dr. Gordon F. Harkness, Davenport, president-elect, will also speak on "Why Are We Here, and Where Are We Going?" Sectional conferences will occupy the program Wednesday and Thursday afternoons, with discussions on the various specialties. Wednesday morning will be given over to a symposium on arthritis, in which participants will be Drs. John C. Parsons, Creston, John K. von Lackum, Cedar Rapids, Archibald F. O'Donoghue, Sioux City, Charles W. Ellyson, Waterloo, Addison C. Page, Des Moines, and Oliver J. Fay, Des Moines. Entertainment will include a formal reception, Wednesday evening, in honor of Dr. Walter L. Bierring, commissioner of health of Iowa, and President-Elect, American Medical Association. The woman's auxiliary of the society will convene in its fifth annual meeting, May 9, and the State Society of Iowa Medical Women will hold its thirty-seventh annual meeting, May 8.

KANSAS

State Medical Meeting at Wichita, May 9-11.—The seventy-sixth annual meeting of the Kansas Medical Society will be held at Wichita, May 9-11, under the presidency of Dr. William F. Bowen. Sessions will be held at the Allis and Lassen hotels. The tentative program includes the following physicians, who will discuss the topics named, among others:

Edgar V. Allen, Rochester, Minn., Hypertension.
Louis A. Brunsting, Rochester, Minn., Recent Advances in Eczema.
Cyril M. MacBryde, St. Louis, Anterior Hypophysis.
Paul B. Magnuson, Chicago, Arthritis with Injuries Superimposed.
Thomas K. Brown, St. Louis, Puerperal Infections.
Harry S. Gradle, Chicago, Eye Injuries and Their Immediate Treatment.
Oscar W. Bethea, New Orleans, Specific Treatment of Asthma.
Edwin C. Ernst, St. Louis, X-Rays.
Alfred I. Folsom, Dallas, Prostatic Resection.
Karl A. Meyer, Chicago, Present Status of Gastric Surgery.
Lee W. Dean, St. Louis, Functional Ear Test for Hearing.
Louis Rudolph, Chicago, Vertex Dystocia.
John L. Jelks, Memphis, Rectocolonic Disease.

MARYLAND

The Thayer Memorial Wards.—February 24 marked the official opening of the Thayer Memorial Wards in the Hurd Memorial Hall of Johns Hopkins Hospital. Judge Henry D. Harland, president, board of trustees, Johns Hopkins Hospital, presided, and speakers included Dr. Simon Flexner, director, Rockefeller Institute for Medical Research, on "Dr. Thayer: Physician, Scientist, Cosmopolitan"; Joseph S. Ames, Ph.D., president of Johns Hopkins University, "Dr. Thayer as a Teacher," and Dr. John M. T. Finney, emeritus professor of surgery, Johns Hopkins University School of Medicine, "Dr. Thayer as a Man." The Thayer wards are two old wards remodeled to form cubicle rooms. There are twenty-two cubicles on each floor, one for women, one for men. The cost of alterations was about $30,000. A large part of this sum was contributed by friends of Dr. Thayer.

MASSACHUSETTS

Another Physicians' Art Society.—The newly organized Physicians' Art Society opened an art exhibit in the Boston Medical Library, April 23, which will continue until May 5. The total number of exhibits in all fields of art is 129, the work of the following physicians and dentists:

Dr. William Lloyd Aycock, Boston
Dr. Edward P. Bagg Jr., Holyoke
Lawrence W. Baker, D.M.D., Boston
Dr. James Dellinger Barney, Boston
Dr. Richard J. R. Caines, Winthrop
Dr. Walter B. Cannon, Cambridge
Dr. William B. Castle, Boston
Dr. Frederic J. Cotton, Boston
Dr. William P. Coues, Brookline
Dr. Harold W. Dana, Brookline
Dr. Cecil K. Drinker, Brookline
Dr. Maurice A. Gilbert, Chelsea
Dr. William W. Harvey, Boston
Dr. S. Hertz, Boston.
Dr. Lewis W. Hill, Boston
Dr. Lewis M. Hurxthal, Brookline
Dr. Percy E. Ireland, Boston
Dr. Frederick C. Irving, Brookline
Dr. James C. Janney, Cambridge
Dr. Ralph C. Larrabee, Boston
Dr. James Howard Means, Boston
Dr. Harris P. Mosher, Boston
Dr. Albert A. Pastene, Norton
Dr. Claude D. Payzant, West Medford
Dr. H. Hale Powers, Brookline
Dr. Eli C. Romberg, Boston
Dr. Walter F. Sawyer, Fitchburg
Dr. Somers H. Sturgis, Boston
Dr. Fritz B. Talbot, Brookline
Dr. Grantley W. Taylor, Brookline
Dr. Sidney C. Wiggin, Newton

The Physicians' Art Society was organized in Boston in February to foster arts and crafts among members of the medical and allied professions, and to hold annual exhibits of the work of its members. Dr. James Dellinger Barney is president and James F. Ballard, director of the Boston Medical Library, secretary. Membership is open to all members of the Massachusetts Medical Society, Massachusetts Homeopathic Medical Society, Massachusetts Dental Society and allied dental societies, and other related organizations, and also hospital interns and medical students.

MINNESOTA

Dr. Bierring Gives Jackson Lecture.—Dr. Walter L. Bierring, President-Elect, American Medical Association, and state health commissioner of Iowa, gave the first annual lecture under the Clarence Martin Jackson Lectureship at the University of Minnesota Medical School, Minneapolis, February 27. He discussed "Historical Sequence of Medical Events." The lectureship was established by Phi Beta Pi in honor of Dr. Jackson, who is head of the department of anatomy at the medical school.

County Society Extension Course.—The newly organized Renville County Medical Society inaugurated a university extension course, April 10, with Dr. Emil C. Robitshek speaking on "Colles Fracture." The second in the series was given April 17, with Dr. E. A. Loomis as the speaker on "Refraction, with General Practitioner's Equipment"; the third, April 24, with Dr. Edgar T. Herrmann, anaphylaxis. Subsequent speakers and their subjects are:

May 1, Dr. Frederick H. K. Schaaf, Bedside Diagnosis.
May 8, Dr. Hewitt B. Hannah, Neuritis.
May 15, Dr. William H. Condit, Gynecology, Office Practice.
May 22, Dr. Thurston W. Weum, Technic of Labor.
May 29, Dr. Frederick C. Rodda, Abnormal Child, Examination and Diagnosis.

MISSISSIPPI

State Medical Meeting in Natchez, May 8-10.—The Mississippi State Medical Association will convene in annual session in Natchez, May 8-10, with headquarters at the Eola Hotel, and under the presidency of Dr. John W. D. Dicks, Natchez. Dr. John M. T. Finney, Baltimore, will deliver the annual oration, Tuesday evening. Out-of-state speakers will include Drs. H. Earle Conwell, Fairfield, Ala., on "Problems Frequently Encountered in the Treatment of Fractures"; Kosciusko W. Constantine, Birmingham, Ala., "Glaucoma"; Waller S. Leathers, Nashville, Tenn., "An Analysis of the Hookworm Problem in Mississippi," and James S. McLester, Birmingham, "The Physician of Yesterday and Today." Other speakers will include:

Dr. Paul B. Brumby, Lexington, Rôle of Glucose in Surgery.
Dr. Leslie V. Rush, Meridian, Present Status of Surgery in Gallbladder Disease.
Dr. Robert H. Brumfield, McComb, Stricture of Ureter.
Dr. Thomas F. Wolford, Columbus, Retrocecal Appendixes.
Dr. De Witt Hamrick, Corinth, Dietary and Glandular Deficiencies in Eye, Ear, Nose and Throat.
Dr. Guy C. Jarratt, Vicksburg, Congenital Syphilis.
Dr. George W. F. Rembert, Jackson, Allergic Phenomena.
Dr. Henry Boswell, Sanatorium, The General Practitioner and Tuberculosis.
Dr. William Krauss, Meridian, Principles Underlying the Treatment of Malaria.

Mayor S. B. Laub, Natchez, will give an address of welcome on behalf of the city of Natchez, and Dr. James C. Rice, Natchez, on behalf of the Homochitto Valley Medical Society.

NEBRASKA

Society News.—At a meeting of the Southwestern Nebraska Medical Society, McCook, March 8, speakers were Drs. David L. Morse, Hayes Center, on "The Tonsil Problem"; John N. Stewart, Stratton, "Measuring Impalpable Objects with X-Rays" and George W. Hoffmeister, Imperial, "Recent Literature on Causes of Prostatic Hypertrophy."——Dr. Géza de Takáts, Chicago, will address the Omaha-Douglas County Medical Society, Omaha, May 15, on "Diagnosis and Treatment of Peripheral Vascular Disease."

NEW JERSEY

Bill Passed.—A. 373 has passed the assembly, proposing to appropriate $10,000 to the state department of health for the purchase of diphtheria toxoid and/or toxin-antitoxin and smallpox vaccine, which is to be distributed free by the department in accordance with its rules and regulations.

Paging Mr. Rando.—Arthur Joseph Rando, who has served as intern and resident physician at several New Jersey hospitals, has obtained these positions by a false claim that he is a graduate of Tulane University of Louisiana, New Orleans, recent investigation revealed. Officials of Tulane state that Rando is not known there. A further claim that he had been employed at Charity Hospital, New Orleans, was not substantiated by the hospital. Records of the American Medical Association do not show that any physician by this name was ever graduated from any medical school, obtained a license to practice or has ever been enrolled in any medical college. When visited by investigators for the New Jersey state board of medical examiners, Rando made an appointment to see them later, but when the investigators called at his home several days later, they were informed that he had departed.

NEW YORK

Bills Passed.—The following bills have passed the assembly and the senate: A. 415, to amend the pharmacy practice act by proposing, among other things, (1) to define a pharmacy as "any place registered by the board in which drugs, chemicals, medicines, prescriptions or poisons are possessed for the purpose of compounding, dispensing or retailing or in which drugs, chemicals, medicines, prescriptions or poisons are compounded, dispensed or retailed or in which such drugs, chemicals, medicines, prescriptions or poisons are by advertising or otherwise offered for sale at retail," and (2) to provide that every pharmacy shall be under the personal management of a duly licensed and registered pharmacist; A. 485, to amend the workmen's compensation act by proposing to make dermatitis venenata compensable when acquired in "any process involving the use of or direct contact with acids, alkalis or oil, or with brick, cement, lime, concrete or mortar capable of causing dermatitis (venenata)"; and S. 1677, to amend the education law relative to credentials, by proposing to make it unlawful for any person to attempt to obtain by fraudulent means any certificate of registration or any diploma, certificate or other instrument, or duplicate thereof, purporting to confer any literary, scientific, professional or other degree. The following bills have passed the assembly: A. 1567, to amend the law prohibiting the admittance of unvaccinated children to schools in cities of 50,000 or more inhabitants, by proposing that an unvaccinated child shall be admitted to school on the recommendation of the city board of health or such other board, commission or officers of such city having jurisdiction of the enforcement of the law; A. 2118, to amend those provisions of the medical practice act relating to osteopathy by proposing to extend to a considerable degree the scope of a license to practice osteopathy. S. 1375 has passed the Senate proposing to amend the law relating to registered nurses by requiring applicants for such registration to be citizens of the United States.

New York City

Seventh Harvey Lecture.—Dr. Thomas M. Rivers of the Rockefeller Institute for Medical Research delivered the seventh lecture of the Harvey Society at the New York Academy of Medicine, April 19. His subject was "Filtrable Viruses, with Particular Reference to Psittacosis."

Hospital Advisory Board.—Dr. Sigismund S. Goldwater, commissioner of hospitals, has appointed the following board of administrative consultants: Drs. Willard Cole Rappleye, Jacob J. Golub, Willis G. Nealley, John H. Wyckoff, Jr., George Baehr, Ernst P. Boas and Haven Emerson and Clarence E. Ford, assistant commissioner, state social welfare department.

Hospital News.—Dr. Richard H. Jaffe, Chicago, delivered a lecture at Mount Sinai Hospital, April 6, on "Modern Concepts of the Pathogenesis of Progressive Pulmonary Tuberculosis." Dr. Richard Bauer, Vienna, gave a lecture on "A New Treatment for Various Types of Coma," March 1, at Mount Sinai Hospital.——Louis I. Dublin, Ph.D., delivered an address at the annual meeting of the directors of the Hospital for Joint Diseases, April 4, on "The Hospital, the Doctor and the Community."

Afternoon Lectures at the Academy.—Recent Friday afternoon lectures at the New York Academy of Medicine have been delivered by the following speakers, among others:

Dr. Robert T. Frank, The Endocrine Glands and Their Relation to the Diagnosis and Treatment of Obstetrical and Gynecological Conditions.
Dr. Samuel J. Kopetzky, Significance and Treatment of Paranasal Sinus Infections in Infants and Adults.
Dr. Alexander Randall, Philadelphia, The Story of Renal Tuberculosis.
Dr. Louis C. Schroeder, Disorders of Adolescence from the Standpoint of the Pediatrician.
Dr. Walter C. Alvarez, Rochester, Minn., Digestive Troubles of the Constitutionally Inadequate.

Society News.—Dr. Leopold Jaches addressed the New York Roentgen Society, March 19, on "Bone Changes in Cases of Disturbance of Lipoid Metabolism."——A symposium on acute and chronic empyema was presented before the New York Surgical Society, March 14, by Drs. John F. Connors, Harold Neuhof, Adrian V. S. Lambert and Walton Martin.——Drs. Charles Gordon Heyd and Charles Hendee Smith addressed the Medical Society of the County of Queens, March 27, on "Hyperthyroidism in Children" and "Pneumonia in Children," respectively.——Dr. George W. Crile, Cleveland, addressed a joint meeting of the Queensboro Surgical Society and the Brooklyn Surgical Society, April 11, on "Pathologic Physiology of the Sympathetic Nervous System and Its Treatment by Adrenal Denervation."——Dr. Joseph C. Beck, Chicago, was guest speaker at a joint meeting of the Medical Society of the Greater City of New York and the Society of Plastic and Reconstructive Surgery, April 13, on "Plastic Repair of Defects Following Radical Surgery for Malignancies About the Head and Neck."

NORTH CAROLINA

Society News.—Dr. George E. Williams, Valdese, addressed the Catawba Valley Medical Society, Lincolnton, March 13, on "The Value of Psychiatry in the Practice of Medicine."——Dr. Michael A. Burns, Philadelphia, addressed the Guilford County Medical Society, High Point, March 2, on treatment of neuroses.——Drs. Donnell B. Cobb, Goldsboro, and John A. Winstead, Rocky Mount, addressed the fourth district medical society at a meeting in Smithfield, February 27, on diagnosis of diseases peculiar to women and amebic dysentery in infants, respectively.——Dr. Springl Weizenblatt addressed the Buncombe County Medical Society, Asheville, March 5, on tuberculous disease of the eyes.——Drs. Alva B. Craddock, Paul H. Ringer and Julian A. Moore, Asheville, addressed the Mecklenburg County Medical Society, Charlotte, on diagnosis and treatment of tuberculosis.——At a meeting of the Durham-Orange County Medical Society, at Duke University School of Medicine, Durham, March 9, speakers were Drs. Oscar L. Miller, Charlotte, on "Fractures of Both Bones of the Forearm" and Luther Emmett Holt Jr., Baltimore, on "Absorption and Utilization of Fat."

OREGON

Society News.—The Southern Oregon Medical Society will hold its annual meeting at Medford, May 8. Among the speakers will be Dr. George W. Swift, Seattle, on "Traumatic Diseases of the Brain."——Drs. Raymond E. Watkins and Frank R. Menne, Portland, addressed the Central Willamette Medical Society, Corvallis, March 1, on "Carcinoma of the Female Genital Organs."——Dr. J. B. Gillis, Jacksonville, addressed the Jackson County Medical Society, Ashland, March 7, on focal infection.——Dr. Gilson A. Ross, Eugene, presented a paper before the Lane County Medical Society, Eugene, March 15, on treatment of fractures of the neck of the femur.——At a joint meeting of the medical societies of Union, Wallowa and Umatilla counties, at Hot Lake Sanatorium, March 9, Dr. Lyle B. Kingery, Portland, gave an address on skin diseases.

State Society Rejects Fee Schedule for Medical Relief.—The council of the Oregon State Medical Society at a meeting in Portland, April 4, adopted a resolution approving the action of its medical advisory committee in refusing to accept a fee schedule offered by the state relief committee. The relief committee had previously rejected a fee schedule drawn up by the society's representatives. In explanation of this action the resolution states that the fee schedule proposed was unreasonably low, not based on cost of the service to be rendered, but purely arbitrary. It is set out that a craft or profession is qualified to determine what is a reasonable and acceptable price for its services. The council took the position that "we will continue to care for our patients as we

always have whether they have means to pay us or not. . . . We are carrying a load that belongs to the whole public, not to us alone."

PENNSYLVANIA

Personal.—Dr. Howard K. Petry, clinical director, Torrance State Hospital, has been appointed superintendent of the Harrisburg State Hospital, to succeed Dr. Edward M. Green, who recently resigned after serving sixteen years.——Dr. Arthur E. Davis has been appointed director of public health of Scranton.

Society News. — Dr. Willard H. Kinney, Philadelphia, addressed the Cambria County Medical Society, Johnstown, April 12, on "Hematuria—Its Significance and Management" and Dr. Louis H. Mayer Jr., Johnstown, explained the technic of examination for the emergency relief program.——Speakers at a meeting of the Allegheny County Medical Society, Pittsburgh, April 17, were Drs. Ehrhardt Ruedemann, on "The Ear in General Medical Diagnosis"; J. Watson Harmeier, "Headache," and Josiah R. Eisaman Jr., "Abdominal Pregnancy."——Dr. George J. Feldstein addressed the Pittsburgh Pediatric Society, April 20, on vaccine therapy of whooping cough.

Philadelphia

Society News.—Dr. Frank H. Lahey, Boston, addressed the Philadelphia County Medical Society, March 28, on "Diagnosis and Management of Hyperthyroidism and Associated States."——Mary J. Hogue, Ph.D., among others, addressed the Physiological Society of Philadelphia, March 19, on "The Effect of Amebicidal Drugs on Tissue Culture Cells."—— Dr. William Drayton Jr. and George E. Coghill, Ph.D., addressed the Philadelphia Neurological Society, March 23, on "Pneumocranium in Treatment of Traumatic Headache, Dizziness and Character Change" and "Growth of Spinal Cord in Relation to Reflex Action," respectively.——At a joint meeting of the Philadelphia Psychiatric Society and the section on medical history of the College of Physicians of Philadelphia, April 13, Dr. Theodore Diller, Pittsburgh, spoke on "Human Credulity as Illustrated by Belief in Witchcraft."

Symposium on Amebic Dysentery. — Members of the faculty of the Woman's Medical College of Philadelphia presented the program of the Philadelphia County Medical Society, April 11. Drs. John Stewart Rodman and Henry D. Jump and Helen Ingleby discussed the surgical complications, pathology and prophylaxis and treatment of amebic dysentery. Dr. Chevalier Jackson spoke on "Prophylaxis of Bronchiectasis" and Dr. Winifred Bayard Stewart on "Encephalitis in Children, Apparently Congenital and Due to Maternal Influenza." A special meeting was held, April 13, for senior medical students of Philadelphia in the interest of promoting the periodic health examination. Speakers were Drs. Thomas A. Shallow, on "The Relation of the Doctor to the Public and the Commonwealth"; Moses Behrend, "Value of Medical Organization" and Francis F. Borzell, "Medicine and Economics."

SOUTH CAROLINA

State Medical Meeting at Charleston.—The eighty-sixth annual session of the South Carolina Medical Association will be held at Charleston, May 1-3, under the presidency of Dr. Robert E. Abell, Chester. Guest speakers will be:

Dr. Fred W. Rankin, Lexington, Ky., Diagnosis and Surgical Treatment of Malignant Lesions of the Large Bowel.
Dr. James R. McCord, Atlanta, Ga., Conservative Treatment of Eclampsia.
Dr. Rosco G. Leland, Chicago, Trends in Medical Economics.
Dr. Jack C. Norris, Atlanta, Cardiovascular Renal Disease.

Among South Carolina physicians who will present papers are:

Dr. Walter R. Mead, Florence, Intracranial Hemorrhage Without Paralysis.
Dr. Lawson Paul Barnes, Bennettsville, Importance and Ease of Prescribing Diets.
Dr. Joseph Decherd Guess, Greenville, Hemolytic Anemia of Pregnancy.
Dr. Julian P. Price, Florence, Use and Abuse of Drugs in Treating Children.
Dr. Charles Williams Bailey, Spartanburg, Anemia in Infants and Young Children.
Dr. Marion H. Wyman, Columbia, Resistance to Infection by Fixed Tissue Cells.

The South Carolina Public Health Association will hold its annual meeting Tuesday morning, May 1; speakers will be Drs. John A. Ferrell, New York, president, American Public Health Association; L. L. Williams and Calvin C. Applewhite of the U. S. Public Health Service, on malaria and community sanitation, respectively, and William A. Mulherin, Augusta, Ga., on preventive pediatrics. The president's reception and ball will be held Wednesday evening at the Francis Marion Hotel.

VIRGINIA

Personal.—Dr. George B. Arnold has been appointed superintendent of the State Colony for Epileptics and Feebleminded, Colony, to succeed Dr. John H. Bell.——Dr. Hugh C. Henry, Petersburg, has been appointed a member of the state advisory board on mental hygiene.

County Societies Organized. — Six counties included in the Medical Society of Northern Virginia recently formed medical societies with provisional presidents to serve until the meeting of the district society, as follows: Clarke County, Dr. Charles O. Dearmont, White Post; Warren County, Dr. David M. Kipps, Front Royal; Shenandoah County, Dr. William C. Ford, Woodstock; Frederick County, Dr. Hunter H. McGuire, Winchester; Rappahannock County, Dr. James G. Brown, Woodville, and Page County, Dr. George R. H. Long, Luray.

WASHINGTON

Society News.—Drs. Milo T. Harris, Port Arthur, Texas, and Samuel E. Light addressed the Pierce County Medical Society, Tacoma, recently, on "Roentgenologic Diagnosis of Diaphragmatic Hernia" and "Relation of Dermatology to General Medicine," respectively. —— Drs. Laurence Selling, Portland, Ore., and Charles M. Doland, Spokane, addressed the Spokane County Medical Society, Spokane, February 8, on "Acute Encephalomyelitis" and "Abdominal Injury Without External Evidence of Trauma," respectively.

GENERAL

Change in Status of Licensure.—The California State Board of Medical Examiners reports the following:

Dr. John P. Sandholdt, Monterey, found guilty on two charges of violation of the federal narcotic law, placed on probation for five years, during which time he must not apply for or have a federal narcotic permit nor have narcotics in his possession. The periods of probation on the two charges are to run concurrently.
Dr. Peder S. Bruguiere, San Francisco, license restored, February 26; placed on probation for two years.
Dr. Schuyler A. Barber, Porterville, license restored, February 26; placed on probation for five years, without narcotic possession or privileges.

National Tuberculosis Association.—The thirtieth annual session of the National Tuberculosis Association will be held in Cincinnati, May 14-17, with headquarters at the Netherland Plaza Hotel. At the opening general meeting Monday evening, Dr. Stuart Pritchard, Battle Creek, Mich., will give his presidential address and Dr. Marion Dorset, Washington, D. C., will give an address on "The Rôle of Tuberculin in Tuberculosis Control." Ralph W. G. Wyckoff, Ph.D., New York, will show a motion picture on growth of acid fast bacilli, and the Trudeau medal will be awarded. Among speakers listed on the tentative program are:

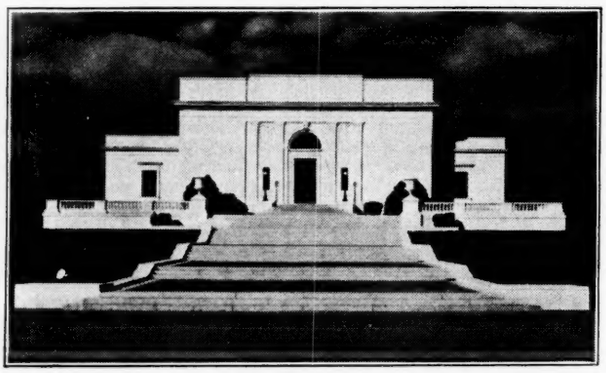
Dr. Alphonse R. Dochez, New York, Acute Infections of the Upper Respiratory Tract.
Drs. George R. Duncan and Ernest S. Mariette, Oak Terrace, Minn., Hyperpyrexia in the Treatment of Tuberculosis.
Drs. Alfred H. Caulfeild and George C. Anglin, Toronto, Ont., Futurity Handicap of the Tuberculosis Contact.
Dr. Isadore D. Bronfin, Denver, Amyloid Degeneration of the Suprarenal Glands as a Factor in Producing Symptoms of Addison's Disease in Chronic Pulmonary Tuberculosis.
Dr. Donald E. Yochem, Newark, Ohio, The Problem of Anemia in Clinical Tuberculosis.

A symposium on collapse therapy will be presented by Drs. Ronald V. Christie, Montreal, Que.; Edgar M. Medlar, Mount McGregor, N. Y.; Lawrason Brown, Saranac Lake, N. Y., and Carl A. Hedblom, Chicago. The American Sanatorium Association will hold its annual session, Monday, May 14.

Medical Bills in Congress.—Senator Copeland, April 20, announced in the Senate his intention "next week, or very soon thereafter," to call up for consideration S. 2800, the Copeland food, drugs and cosmetics bill. *Changes in Status:* H. R. 3768 has passed the House, changing the name of the retail liquor dealers' stamp tax in the case of retail drug stores or pharmacies to "medicinal spirits stamp tax." S. 2794, to amend the longshoremen's and harbor workers' compensation act, has been reported to the Senate, with amendments (S. Rept. 588). Among other things, the bill would authorize a deputy commissioner to suspend payment of compensation if the injured employee unreasonably refuses to submit to medical and surgical treatment. The companion bill in the House, H. R. 8057, has been reported to the House, with amendments (H. Rept. 1244). *Bills Introduced:* S. 3382, introduced (by request) by Senator Thomas, Oklahoma, provides that Osage Indians who are habitual drunkards or habitual users of narcotics may be committed to institutions. H. R. 9121, introduced by Representative Brunner, New York, and H. R. 8977, introduced by Representative Rudd, New York, propose to amend the Radio Act of 1927, as amended,

so as to require all radio broadcasting stations to allocate not less than one fourth of their operating time to educational, religious, agricultural, labor, cooperative and similar non-profit-making associations.

Pharmacy Building to Be Dedicated. — The American Institute of Pharmacy, new headquarters of the American Pharmaceutical Association in Washington, D. C., will be dedicated during the annual session of the association, May 7-12. The new building, located on Constitution Avenue, near the Lincoln Memorial, is of white Vermont marble, with twenty-four rooms. In one end will be a pharmaceutic library, in the other a museum depicting 150 years of American pharmacy. The ground floor contains rooms for storing valuable books and documents and for offices. It is expected that the Revision Committees of the U. S. Pharmacopeia and of the National Formulary, the American Association of Colleges of Pharmacy and other professional organizations will have quarters in the building. It was originally planned to include a research laboratory, but the plan was abandoned when a member of the association offered to build a separate building for this purpose. The main doors and outside lighting fixtures are of bronze. Panels on each side of the main entrance will hold decorations illustrating the history of pharmacy. Henry A. B. Dunning, Phar.D., Baltimore, is chairman of the building committee and others associated with him in completing the undertaking have been Samuel L. Hilton, Phar.D., Eugene G. Eberle, Phar.M., and Evander F. Kelly, Phar.D., all of Washington; Robert L. Swain, Baltimore, and James H. Beal, Sc.D., Fort Walton, Fla.



Headquarters of the American Pharmaceutical Association.

CANADA

Banting Research Foundation. — During the past year twenty research workers received grants from the Banting Research Foundation, according to a report in *Science*. Grants have been made during the six and a half years of the fund's existence to sixty-three workers, principally in Canadian universities. It also aids in the support of the department of medical research of the University of Toronto, under the direction of Dr. Frederick G. Banting. The capital sum now amounts to about $700,000.

Vancouver Summer School. — The annual Vancouver Medical Association summer school will be held, June 26-29, at the Hotel Vancouver. Speakers will be Dr. Frank W. Lynch, San Francisco, obstetrics and gynecology; C. E. Dolman, Dr.P.H., Toronto, laboratory problems; Drs. Howard C. Naffziger, San Francisco, surgery; Max Cutler, Chicago; Walter C. Alvarez, Rochester, Minn., gastro-enterology, and Charles A. Aldrich, Winnetka, Ill., pediatrics.

New Radium Source Reported. — Newspapers reported, April 6, that a new deposit of pitchblende giving promise of a greater supply of radium has been discovered in the Beaver Lake area of Northwest Territory. Since the discovery of radium ore at Great Bear Lake four years ago Canada has become a producer of radium, several thousand milligrams having been produced by the refinery at Port Hope, Ont., which operates the deposits at Great Bear Lake. The province of Ontario has purchased several hundred milligrams for use in its cancer clinics. A recent statement from the government department of mines points out that, contrary to a general belief, the government has no connection with the commercial production of radium. The department of mines devised the method used in treating the ores and mapped the area, but it has no control over production or prices.

Foreign Letters

LONDON

(From Our Regular Correspondent)

March 31, 1934.

New Legislation for the Labeling of Food

New legislation on food qualities and food contents will be recommended by a departmental committee, which has just drafted its report. It advises that parliament shall empower the minister of health to make orders as to the contents and qualities of particular foods on the findings of an advisory committee, which shall consult the interests affected and hear evidence. In the event of a uniform standard being suggested, the committee would adjudicate and lay its conclusions before the minister of health. Bread, jam, meat paste, egg powder, custard powder and ice cream are among the great range of commodities that might come under such a procedure. At present, legal standards have been adopted for a few articles, such as milk, butter, cream and margarine. There are in existence already regulations limiting the proportion of preservatives in certain products and provisions in the food and drugs act against the sale of articles "not of the nature, substance and quality demanded." But the interpretations of public analysts as to what is a genuine article vary from district to district, even with regard to cheese, for instance. The matter has been under consideration since 1931. Authorities on food values declare that parliament cannot delay action much longer, as it is astonishing how many kinds of food are sold under names that give the housewife no guaranty of what she gets for her money. The commonest example is "bread," a word that may mean almost anything.

The Contraceptives Bill

In the house of lords, Lord Dawson (president of the Royal College of Physicians) moved the third reading of his contraceptives bill (THE JOURNAL, March 10, p. 780) to control the public exhibition of drawings and diagrams of contraceptives and their sale in streets and other public places by means of hawking and automatic machines, these being regarded as an offense against public manners. He considered that the best way of dealing with evil was to promote good, and the best way of dealing with contraception was to remove the atmosphere of falsity that surrounded it. If a ballot should be taken among married persons under the age of 40 he thought that three fourths or more would desire to be in a position to regulate the numbers and spacing of their families. How otherwise was to be explained the steady fall in the birth rate? He appealed to the ministry of health to permit a wider discretion to local authorities, so that birth control instruction might be given to married women. This would direct the movement into regular channels and save newly married women, medically unfit for pregnancy, from endangering their lives. The bill was passed.

Increase in Road Accidents

Notwithstanding all attempts to prevent road accidents, the number for 1933 shows a substantial increase. In Great Britain last year 7,202 persons were killed on the roads, compared with 6,667 in the previous year, and the total number injured was 216,328, compared with 206,450. The accidents numbered 191,782, compared with 184,006. The figures for England and Wales alone are still more unsatisfactory, for in Scotland there was a decrease of one in the number killed. The number of accidents resulting in killed or injured in England and Wales was 175,738, compared with 167,752 in the previous year. The killed numbered 6,498, against 5,962; the injured 198,539, against 188,680. There is, of course, a demand that something more

be done. The government is about to introduce at once a new road traffic bill, of which the following are the principal proposals: A 30-mile limit for private automobiles and motorcycles in "built-up areas" (defined as an area where a system of street lighting is maintained), with lower limit for heavier goods vehicles. The erection of traffic signs if an unlighted length of road is subject to, or a lighted length of road exempted from, the 30-mile limit. The number of separate speed limits to be reduced from six to four. A conviction for exceeding the speed limit or for careless driving to be endorsed on the driver license. A person convicted of careless driving to be liable to disqualification for one month on a first conviction and three months on a second. A new applicant for a driver's license must satisfy the authority of his competence to drive. The use of horns and similar appliances to be regulated. Pedal cyclists may be required to paint a white patch on the rear mudguard. Reflectors not complying with the statutory requirements as to optical efficiency must not be sold. Local authorities may establish crossing places for pedestrians, to be complied with under penalty of a fine. It is claimed that this system has been a great success in Paris. In a broadcast the minister of transport appealed for the exercise of caution. The National Safety First Association has begun a six months intensive campaign, for which it has received a grant of $25,000 from the Road Fund. A sound film has been produced for children and already has been shown to 500,000. A new series of posters and instructional matter are in hand for use in schools.

The Village Settlement Treatment of Tuberculosis for Ex-Service Men

The treatment of tuberculosis in village settlements, introduced by Sir Pendrill Varrier-Jones, under which patients live with their families and carry on industries, has been described in previous letters. The first settlement was at Papworth in Cambridgeshire and proved so successful that it has been taken as a model. Preston Hall, near Maidstone, was established as a settlement for ex-service men. It comprises three sections —the sanatorium, the training center and the settlement where ex-patients live with their wives and children while earning a living at industries. The village population numbers 902 and is made up as follows: sanatorium, 250 patients; staff, 58; settlement, 594. Printing is one of the industries carried on in the settlement, and the excellent printed report is a specimen of the work done. Dr. J. B. McDougall, the medical director, insists on the importance of after-care in the treatment of tuberculosis and shows the exceptional advantages of the village settlement for this. But he does not consider the village settlement as the solution for the eradication of tuberculosis in this country. He criticizes the view that the village settlement should continue to provide security for tenure in employment for indeterminate periods, regardless of the clinical condition, and suggests how the scheme can be made available for a larger number of patients who are likely to derive medical benefit from prolonged after-care. The essential object of the village settlement in the treatment and after-care of pulmonary tuberculosis is to bring the active disease to a state of arrest for a period sufficiently long to reduce liability to relapse to a minimum. But the settlement should not become a center for the employment in perpetuity of arrested cases.

The Lowest Birth Rate on Record

In the last twenty years the recording of the lowest birth rate ever known since statistics on this matter have existed has become monotonous. The rate for 1933 is 14.4 per thousand of population and the lowest ever recorded. It was also the lowest for the fifth year in succession. The death rate was 12.3 and the mortality of infants under 1 year 64 per thousand live births.

PARIS

(From Our Regular Correspondent)

March 7, 1934.

Staphylococcus Vaccine in Treatment of Herpes Zoster and Varicella

Dr. Pacréau of St. Nazaire has recently made a contribution to the subject of staphylococcus vaccine in the treatment of herpes zoster and varicella, which appears decisive. In eighteen months he treated twenty-five cases of herpes zoster by this method with success. The injections are made every two days. The first dose in normal subjects is 0.5 cc.; then, depending on the case, one can renew the dose or increase it to ⅔ cc. and then to 1 cc. Three injections generally suffice to effect a permanent cure. The author prefers a stock vaccine that contains staphylococcus anatoxin. In cases of herpes zoster thus treated, from the first injection of vaccine, the pains diminish and sometimes disappear completely in forty-eight hours, and the patient regains his sleep. The extension of zosterian dermatitis is checked and often the vesicles diminish in size and begin to dry up. As a rule, after the second injection there is no longer any sensitiveness of the skin nor neuralgia. The vesicles are transformed into brownish crusts, loosely adherent, which, as they drop off, leave a normal pink epidermis. A third injection, in about half of the cases, was made to insure the cure. How does the antistaphylococcus vaccine act in herpes zoster? It does not seem likely that it is through the febrile reaction, for numerous cures have been effected without the slightest general reaction having been observed. Furthermore, Dr. Craps in Brussels had previously discovered that injections of foreign proteins (horse serum) do not produce any result whatever. Recently Dr. Pacréau observed an etiologic connection between herpes zoster and varicella. In one family, herpes zoster was diagnosed in the mother, and about twelve days later the two daughters and the father developed typical varicella, which in the father became infected and generalized; nevertheless a cure was quickly effected by vaccinal and local treatment. While it is impossible to say to what extent each of these treatments contributed to the patient's recovery, the author thinks that, while the external treatment facilitated the disappearance of pyodermitis, the vaccine doubtless combated effectively the varicella. The author says that, of all the common treatments—local dressings with or without analgesics, internal medications, autohemotherapy—none can give such rapid and good results as antistaphylococcus vaccination.

Suboccipital Puncture

Suboccipital puncture was used at first only by neurologists, but it is coming to be used more generally throughout France, and some physicians prefer it to lumbar puncture. Mr. Basch, who discussed this method before the Société des médecins des hôpitaux de Paris, stated that with this method one can easily follow the variations of the cerebrospinal fluid of syphilitic patients under treatment. The accidents due to faulty technic are exceptional, if the mastoid processes are properly taken as the bench marks. This puncture gives no meningeal reaction and no secondary headache. Mr. Basch gave his observations on forty-eight punctures that he performed, and he confirmed the favorable opinion previously expressed by Mariano Castex and P. Ravaut. A general discussion followed before the society, from which it appears that suboccipital puncture has given satisfaction to all who have used it but that prudent reservations should be made as to its generalization among inexperienced persons. There were, however, some opponents. Mr. Guillain held that lumbar puncture is preferable to suboccipital puncture, for the latter does not furnish all the necessary information in medullary disorders. Mr. Comby preferred

lumbar puncture and called attention to the danger of puncturing the bulb; but Mr. de Gennes replied that such an error is anatomically impossible.

The Annual Art Exhibit of Physicians

The Salon des médecins is an annual exhibit of paintings, sculptures and engravings made by physicians. This exhibit was established forty years ago and is always a success. It is held early in March and attracts even the professional art critics, who write it up in the daily press. All profits from the sale of tickets and from entry fees ($6) go to the support of the Maison du médicin, a home for aged physicians. The exhibit this year was unusually good. Works also of widows, wives, daughters and sisters of physicians are admitted. There were a number of humorous drawings and caricatures. The sculptures, although fewer in number, had higher artistic value. Dr. Sabouraud, the dermatologist, is an excellent artist whose works have attracted attention at the exhibits. A place was reserved this year for the exhibit of medallions engraved by Professor Hayem, who died recently at the age of 90. He was a remarkable engraver.

Death of Professors Pinard and Bousquet

Professor Pinard died recently, following a cerebral congestion, at the age of 90. An eminent obstetrician, he is regarded in France as the father of puericulture. His professional card bore simply the words "Dr. Pinard, puériculteur." A pupil of Tarnier, he was professor of obstetrics and gynecology at the Faculté de médecine de Paris, a member of the Academy of Medicine, and Grand Officer of the Legion of Honor. Before his death he was able to witness the opening of the Institut de puériculture de la Faculté de Paris, the creation of which he had long since demanded. In 1919 he was elected member of the chamber of deputies for Paris. He presented an extensive program designed to raise the birth rate, which however he was unable to get parliament to adopt. His health was excellent; among the members of the Academy of Medicine, his age was surpassed only by Dr. Guéniot, who is now 102 years old.

Likewise the death of Professor Bousquet, former superintendent of the Ecole de médecine de Clermont-Ferrand, an eminent surgeon and the author of numerous classic works, at the age of 82, is announced. Bousquet began his career as a military surgeon.

BERLIN

(From Our Regular Correspondent)

March 5, 1934.

Some Restrictions on Private Practice Removed

Some important regulations pertaining to the krankenkassen (THE JOURNAL, Dec. 30, 1933, p. 2132) have been recently introduced. The last of the ambulatoriums of the krankenkassen (which existed in Berlin) were closed by the end of 1933. Thus an unsatisfactory institution, which the medical profession had constantly combated ever since its creation during the postwar years, on the ground that it did not constitute a well ordered individual system of treatment, has come to an end. Economic objections were likewise urged against the system; for the physician should be free to practice as he chooses and should not be an officer employed by the krankenkassen and dependent on their behests. Hours of service, in the relationship of an employee, are not in keeping with the ethical and practical tasks of the medical profession. By this new regulation the treatment of the families of the members of krankenkassen has been finally restored to physicians who are free to practice as they see fit. Only a few diagnostic institutes, chiefly for serologic and bacteriologic experiments, will remain open.

In Greater Berlin the dispensatory, which imposed extensive restrictions on the practicing physician in the prescribing of medicines, has been abolished. The Berlin dispensatory had frequently been severely criticized by experts in that field. The prescribing of medicines and remedies is still controlled, however, by the "Richtlinien für die wirtschaftliche Verordungsweise," which was set up by the federal commission on physicians and krankenkassen and has been frequently amended and improved during recent years. The financial side of the prescribing of medicines and remedies has been regulated by an agreement entered into by the Kassenärztliche Vereinigung Deutschlands and the league of the krankenkassen, whereby a fixed norm for the average consumption of these substances is established. In Berlin the established norm for general practitioners (which includes office requirements) is fixed at 4 marks ($1.52) for each case treated. The norms for the other groups of physicians are likewise fixed. If the cost of the medicines and remedies prescribed by a panel physician exceeds by more than 20 per cent the norm established for his group, he must pay the excess amount, it being deducted from his share of the total compensation. These sums are then turned over to the krankenkassen. The law provides, however, for certain exceptions; for example, in the event of a small number of cases treated (under fifty), because a strict application of the law would work a hardship on the physician concerned, and likewise in cases of disease of a peculiar type. Furthermore, the deduction of the excess sum may be omitted if the later activities of the physician concerned have been kept within the limits prescribed and the discovered excess amount has been compensated for.

The following articles may not be prescribed for krankenkassen patients: wine and other alcoholic beverages without pronounced therapeutic effect (except in cases of threatened danger to life); bottled drinking waters without marked therapeutic effect; effervescing mixtures without marked therapeutic effect; artificial bath improvers without marked therapeutic effect, which serve mainly to aromatize the bath water; cosmetic applications that serve for the cleansing, staining or beautifying of the skin, the hair, the nails, the teeth or the mouth cavity, of healthy persons; preparations that serve to arouse the sexual impulse; preparations that serve as contraceptives; remedies or devices to induce abortion, even though they have been advertised as remedies in menstrual disorders; remedies to combat drunkenness; preparations that contain medicine in candy form, with the exception of quinine chocolate wafers for children; preparations intended for the public, which are marketed often by the producer himself, and preparations listed officially as "patent medicines." This list may be changed from time to time.

By economical treatment is meant that the physician is under obligations to treat his patients adequately and in a practical manner. He must refuse all treatment that is not necessary and must prescribe all therapeutic measures, particularly medicines and cordials, in an economical manner. He must protect the krankenkassen against expenditures so far as the nature of the service to the patient permits. The treatment must not go beyond what is necessary. The issuance of certificates with regard to incapacity to work must be based on a conscientious appreciation of the existing conditions. This definition has been expressly emphasized in the agreement mentioned. The krankenkassen, in turn, agree to use their utmost endeavors to induce the insured to make economical use of the krankenkassen.

If the krankenkasse has reason to believe that a panel physician is not heeding the established requirements and is going beyond reasonable needs or thinks that he does not treat patients properly, it may appeal to the vereinigung and demand an investigation. The activities of the krankenkassen are further supervised by an examining board appointed by the

Kassenärztliche Vereinigung, in the deliberations of which the krankenkassen may participate through their medical representatives.

A new announcement concerning admission to krankenkassen practice is of interest. A rumor has been circulated that elimination of all women from medical practice is contemplated. That is not the case, but admission of women to medical study, and likewise the licensure of women physicians and their location in a medical practice, are under the control of the authorities. The medical organizations have no say in the matter. With respect to admission to panel practice, it is provided that men and women physicians shall be temporarily suspended from panel practice if they or their spouse have an income from other sources amounting to at least 500 marks (or correspondingly more if there are children in the family). No special regulation applicable to women physicians is contemplated. With regard to new admission to panel practice, married applicants will be given preference, and married applicants who have children will be accepted first. A recent regulation provides that in Berlin (likewise in many other cities) physicians may not hold consultation hours and receive patients at two different places.

The Economical Use of Expensive Drugs

The economical use of expensive drugs was recently discussed by Dr. Rudolf Hopmann before the Allgemeiner Aerztlicher Verein in Cologne. With regard to the prescribing of insulin, for example, it is not correct merely to ask, What is the smallest dose that will be effective? The whole situation must be taken into account, with the idea of restoring the patient's working capacity even with the use of considerable quantities of insulin; for example, when the prescribing of strict diets is out of the question. In principle, insulin therapy should be preceded by a purely dietetic treatment. In the presence of a constitution characterized by corpulence and sthenia, days of severe diet may be kept up longer than in the case of lean persons. In dealing with the latter, if there is danger of acidosis, insulin had better be prescribed, the days of severe diet be omitted and a moderate diet, with at least 100 Gm. of carbohydrates, instituted. The insulin requirements must generally be based on the actual amount of sugar in the twenty-four hour specimen of urine and on the fasting blood sugar. The insulin deficit must, however, be regarded as permanent and continuous. Even the damaged islands of Langerhans produce a certain quantity of insulin. These can be stimulated by special treatment: interspersed protein and carbohydrate days, and von Noorden's so-called zigzag diet. In some diabetic persons, muscular activity improves insulin utilization. The best method of administering liver extracts is by intervals of action and repose. The intervals may be several weeks or even months in length. The cost of this method of injection as compared with peroral liver treatment, considering both the factors time and effect, is as 15 to 75.

Observations on Electrosurgery

Prof. K. H. Bauer, professor of surgery at the University of Breslau, has reported on 500 operations performed by electrosurgery. By histologic sections it was shown that, although the process of wound healing was slower than with the scalpel incision, and in some instances complicated by later hemorrhages (on the fifth day), it was marked by fewer evidences of infection, by accelerated regeneration and by relative absence of operative shock. The question is, What patients may be operated on better with the electric knife than by the older method? The new method appears to be adapted especially to papillomas of the bladder, divisions of the cord with the aid of the thoroscope and coagulation of the gasserian ganglion; also to operations on "bleeders," operations on parenchymatous organs, in total removal of malignant tumors. As cancer cells appear to be more sensitive to heat than other cells, good results were possible also in nonradical procedures; reinoculations are avoided and recurrences can be attacked anew after several previous operations.

Reduction of Occupational Diseases

According to the annual reports of the industrial unions, the occupational diseases showed a decline between 1929 and 1932. In 1929, 22,258 cases of occupational illness were reported; the number was reduced, in 1932, to 6,493. In 1930 the number of compensated occupational disorders reached the maximum, whereas in 1932 the number was reduced to 1,711. The decline is due partly to the introduction of legal measures and partly to the repercussive effects of the changes in economic conditions. The number of cases of pneumonoconiosis reported last year was 605, whereas in 1929 more than 1,750 cases were notified.

THE NETHERLANDS

(From Our Regular Correspondent)

Feb. 27, 1934.

Tobacco Consumption in the Netherlands

The consumption of cigars showed a steady increase from 1924 to 1930, but in 1931 and 1932 there was a decrease. The consumption of cigarets maintains its ascending curve. The consumption per person is increasing: for cigars, 146 in 1923, 174 in 1930 and 167 in 1932; for cigarets, 274 in 1923, 455 in 1930, 444 in 1931 and 450 in 1932. The total value of cigars, cigarets and tobacco consumed amounted to 142,000,000 florins ($92,300,000) in 1923, 152,000,000 in 1924, 138,000,000 in 1925, 183,000,000 in 1930, 180,000,000 in 1931 and 163,000,000 in 1932. The cost per person was 19.89 florins. ($14) in 1923, 23.25 florins in 1930 and 20.01 florins in 1932. One observes also in recent years a marked increase in the consumption of cheaper brands of tobacco to the detriment of the better qualities. The number of two-cent cigars rose from 197,175 in 1931 to 279,538 in 1932, whereas the number of two-florin cigars dropped from 6,000 in 1931 to 3,000 in 1932.

An Emblem for Physicians' Automobiles

The commission appointed by the government to select an emblem for physicians' automobiles has chosen the caduceus with a serpent coiled about it. As to the significance of the emblem, there are now many emblems recognized locally the holders of which enjoy certain privileges; for example, the right to exceed the speed limit, priority of passage on ferryboats and parking in places otherwise prohibited. But these privileges have little value unless there is a traffic officer present to enforce them. On the open highways there are no traffic officers, so that these privileges are of little avail. The commission does not deem it desirable to attach to this insigne any special obligations. Every automobilist from whom one requires aid on the highways must stop whether he is a physician or not, and whether or not the car bears a special emblem. From that point of view, instead of relying on an emblem that is too small to be noticed on a rapidly moving car, it would be preferable to agree on a signal (for example, a handkerchief held in an extended arm), which would signify, "If a physician, please stop." The installation, along the highways, of aid stations supplied with surgical dressings and equipped with a telephone would be equally desirable. The commission ends its report with the following conclusion: adoption of an emblem for the simple purpose of bringing the automobilists and physicians together, without attaching thereto any special privileges or obligations, and the possible internationalization of the emblem.

Statistics on Cremation

T. Van Den Brink gives, in the *Mensch en Maatschappij*, statistics on cremation in the Netherlands and in other countries. The Association for Optional Cremation was founded in 1874. The first cremation occurred in 1914. Progress has been more rapid in recent years. From a total of 262 in 1925 the number rose to 555 in 1931. During the first eleven months of 1932, 585 bodies were cremated. In 1931 the percentage had not yet reached 1 per cent, there having been 555 cremations and 77,000 deaths. This figure is much lower than that of other countries. In 1930 the number of cremations per thousand deaths in various countries was as follows: Japan, 494; Argentina, 135; Switzerland, 106; Germany, 76; Denmark, 44; Austria, 43; Norway, 41; Czechoslovakia, 23; Sweden, 14; England, 10, Netherlands, 7, and France, 2. Switzerland, in spite of its small population and restricted area, has twenty crematories. By the end of December 1930 the number of members in the Association for Optional Cremation had risen to 9,000, representing about 35,000 advocates of cremation. The Netherlands is today the only country of Europe that has no law regulating cremation. By its refusal to recognize cremation officially, the government seems to stamp it as illegal. It is surprising that no attempt has been made to regulate the question by a modification of the law of 1869 in regard to burials.

The Public Health in Dutch Guiana

From a comparison of the mortality figures in the metropolis and in Dutch Guiana, it is evident that the number of deaths from unknown causes is still high in the colony, particularly from cancer, which is much less often recognized than in the Netherlands. Vaccinations against infectious diseases, and the surveillance of schools, have given encouraging results. More than 26,000 patients took a course of treatment for ancylostomiasis in 1932. The crusade against leprosy has been active. Patients have been compelled to accept treatment and if necessary isolation in a leprosarium; special schools for leprous children makes it possible to treat patients promptly. Free treatment in the policlinics has been instituted for venereal diseases. Dr. Lampe has pointed out that the effectiveness of arsphenamine and bismuth compounds in the treatment of syphilis seems to be decreasing owing to the appearance of more resistant forms of virus.

Aid for Foreign Physicians

The recent events in Germany are the cause of so many Jewish physicians being obliged to leave Germany and being without resources. Dutch physicians have appointed a commission that, aside from all political considerations, will endeavor to support the morale and undermined financial status of their unfortunate colleagues. The new regulations of the Netherlands no longer permit foreigners to hold the position of assistant in a hospital or a laboratory. In the hope of aiding their confrères, the Dutch physicians have sent letters of inquiry to other countries to ascertain whether these physicians can secure permanent openings there.

Foreign Students

A large number of foreign students have come to our universities. The government is considering the erection of certain barriers to the admission of foreign students. The minister of public education has pointed out that this increase in foreign students required additional expenditures for laboratories and that the places in the laboratories and hospitals were often occupied by them. He thinks that this danger must be combated as soon as possible by excluding all foreign students from enrolment in the universities and higher schools of learning.

BUENOS AIRES

(From Our Regular Correspondent)

Feb. 15, 1934.

Protest Against Free Service to the Rich

The recently founded Colegio de Médicos has studied various professional problems, which are discussed in *Revista*, the official journal of the association. The principal activities of the members have up to the present been concentrated on hospital problems. The city, the government and several private institutions support free hospitals, where anybody who presents himself at the institution is taken care of. Many of these persons are well to do; some are even rich. The physicians serving in those hospitals receive no salary or at best very small salaries. There is a large number of patients in proportion to the number of physicians; for instance, at the Rawson Hospital 16,000 hospital patients and 284,000 outpatients were treated in one year by only twenty-four physicians. Each pharmacy assistant filled 230 prescriptions in one day. It is impossible to do good work. The members of the Colegio de Médicos hold that free hospital service by the city or the government should be given only to the poor, patients whose incomes vary from 160 to 350 pesos a month, according to the size of their families. For obstetrics and surgery, the basis of the calculation would be raised one third. Free services are attacked because they demand from the state resources beyond its means and compel physicians to serve without remuneration people who can pay. The members of the Colegio de Médicos hold also that assistant physicians and heads of departments should have adequate remuneration. As a result of these negotiations the city of Buenos Aires passed a law of gradation of physicians in the hospitals. Down in the scale is the assistant physician, who obtains appointment by passing an examination; five years later he may be assigned as an associate physician. There will be a physician for each twenty beds in a hospital. The head of a department is appointed for ten years. Besides these there will be intern physicians, assigned after examination. Each hospital will have its own medical director, a position obtained only by promotion from the lower to the immediate position.

Another problem studied by the Colegio de Médicos was the economic and professional relations between physicians and institutions of mutual aid and welfare, many of which are flourishing but pay little to the physicians who work for them and are the bases of their activities.

Institute for Diagnosis of Neoplasms

An institute for the diagnosis of neoplasms, supported by the centers of public welfare and sanitary administration of the federal capital, was inaugurated February 9 in Buenos Aires, with Dr. Domingo Mosto, associate professor of pathologic anatomy of the University of Buenos Aires, as director. This institution will make all biopsies and examine all specimens sent by physicians or by municipal hospitals. The purpose is to obtain early diagnosis with the aim of an early treatment of cancer. Besides this municipal institution there is at Buenos Aires the Instituto de Medicina Experimental, with Dr. A. H. Roffo as director. This institution is exclusively for the study of cancer and it is supported by the national university of Buenos Aires and by the national government of Argentina. It is equipped with wards, polyclinics and laboratories.

Death of Professor Iribarne

Dr. J. Iribarne, professor of gynecology of the Faculty of Medicine of Buenos Aires, aged 49, died as result of an automobile accident. Twice he was dean of the Faculty of Medicine of Buenos Aires. He was also an organizer of medical and social works. He was president of the Argentine Social Museum and the editor of several medical journals.

Marriages

EVERETT WALKER MCCAULEY, Burlington, N. C., to Miss Ella Irene Wilson of Townesville, February 2.

LUCIUS H. BRACEY, South Hill, Va., to Mrs. Gladys Yancey Bramham of Durham, N. C., February 22.

RICHARD ADDISON THAYER to Miss Barbara F. Pierson, both of Beloit, Wis., February 24.

DUDLEY CYRUS BABB, Baltimore, to Miss Margaretta Laurenson Lackey, April 2.

HUGH P. GREELEY to Mrs. Mark Troxell, both of Madison, Wis., March 23.

Deaths

Jacques Holinger ⊕ Chicago; Universität Basel Medizinische Fakultät, Basel, Switzerland, 1892; member of the American Otological Society; associate professor of laryngology, rhinology and otology, University of Illinois College of Medicine; aged 68; on the staffs of the Alexian Brothers' Hospital, Illinois Masonic Hospital, Grant Hospital and St. Joseph's Hospital, where he died, March 30, of coronary occlusion.

Earle Russell Hare ⊕ Minneapolis; University of Minnesota Medical School, Minneapolis, 1900; at one time secretary of the Minnesota State Medical Association; member of the Western Surgical Association and the American Association of Anatomists; formerly instructor in anatomy and surgery at his alma mater; fellow of the American College of Surgeons; surgeon to St. Barnabas Hospital; aged 61; died, April 8.

Richard Jordan, New Canaan, Conn.; Medizinische Fakultät der Universität, Leipzig, Saxony, Germany, 1895; member of the American Otological Society; fellow of the American College of Surgeons; formerly visiting otolaryngologist to the Lenox Hill Hospital and the Fifth Avenue Hospital, New York; aged 64; died, February 5, in the Polyclinic Hospital, New York, of pulmonary embolus.

William Crissey Kellogg ⊕ Augusta, Ga.; Johns Hopkins University School of Medicine, Baltimore, 1900; professor of clinical ophthalmology and otolaryngology, University of Georgia Medical Department; fellow of the American College of Surgeons; on the staffs of the Lamar Hospital and the Wilhenford Hospital for Women and Children; aged 59; died, February 14, of pneumonia.

Ernest White Patton ⊕ Chattanooga, Tenn.; University of Nashville Medical Department, 1908; fellow of the American College of Surgeons; past president of the Chattanooga and Hamilton County Medical Society; on the staffs of the Baroness Erlanger Hospital and the Newell and Newell Sanitarium; aged 52; died suddenly, March 15, at his home in Lookout Mountain, of heart disease.

Archibald Byron Macallum, London, Ont., Canada; University of Toronto Faculty of Medicine, Toronto, 1889; emeritus professor of biochemistry, McGill University Faculty of Medicine, Montreal; formerly lecturer and professor of physiology and biochemistry at his alma mater; member of the Association of American Physicians; aged 74; died, April 5.

Willis Bryant Jones, Atlanta, Ga.; Columbia University College of Physicians and Surgeons, New York, 1901; member of the Medical Association of Georgia; on the staffs of the Grady, Crawford W. Long, Wesley Memorial and Georgia Baptist hospitals; aged 59; died, March 3, in the Union Memorial Hospital, Baltimore, of intestinal obstruction.

Henry McMahon Painter, New York; College of Physicians and Surgeons in the City of New York, Medical Department of Columbia College, 1888; formerly professor of clinical obstetrics at his alma mater; consulting obstetrician to the Sloane Hospital for Women; aged 71; died, March 11, of chronic myocarditis.

Clarence Clifton Miles, Greenport, N. Y.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1876; member of the Medical Society of the State of New York; formerly coroner and bank president; aged 79; died, March 8, at the home of his daughter in West Newton, Mass.

Roscoe William McKinley, Burlington, Wash.; National University of Arts and Sciences Medical Department, St. Louis, 1917; member of the Washington State Medical Association; served during the World War; on the staff of the Burlington General Hospital; aged 43; died, March 14, of lobar pneumonia.

Snow Parker Freeman Cook ⊕ Gloucester, Mass.; University of Pennsylvania School of Medicine, Philadelphia, 1886; member of the New England Ophthalmological Society; aged 71; on the staff of the Addison Gilbert Hospital, where he died, April 6, of ulcerative colitis and cerebral hemorrhage.

Monroe David Reese ⊕ Lebanon, Pa.; University of Pennsylvania School of Medicine, Philadelphia, 1921; member of the American Academy of Ophthalmology and Oto-Laryngology; past president of the Lebanon County Medical Society; aged 37; died, March 22, of carcinoma.

James Gordon Bonine, Cassopolis, Mich.; Illinois Medical College, Chicago, 1901; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1902; formerly state senator; aged 57; died suddenly, March 3, in a hospital at Niles, of heart disease.

Harry Warren Lincoln ⊕ Brooklyn; Long Island College Hospital, Brooklyn, 1894; on the staffs of the Jamaica Hospital, Richmond Hill, N. Y., Wyckoff Heights and Bushwick hospitals; aged 61; died, March 25, in the Brooklyn Eye and Ear Hospital, of heart disease.

Adelbert Howard Monty, Woonsocket, R. I.; Columbia University College of Physicians and Surgeons, New York, 1906; member of the Rhode Island Medical Society; on the staff of the Woonsocket Hospital; aged 50; died, February 9, in Providence, of myocarditis.

Charles W. Moody, Plainville, Conn.; New York Homeopathic Medical College, 1884; at one time member of the board of education; aged 76; died, February 19, in the Bristol (Conn.) Hospital, of fracture of the femur, hypostatic pneumonia and hypertrophy of the prostate.

Ross Hopkins, Jefferson City, Mo.; Johns Hopkins University School of Medicine, Baltimore, 1903; member of the Missouri State Medical Association; for many years connected with the state board of health; aged 55; died, March 27, of muscular atrophy.

Edward Cole Clavin, San Antonio, Texas; University of Pennsylvania School of Medicine, Philadelphia, 1893; member of the State Medical Association of Texas; aged 65; formerly on the staff of the Santa Rosa Infirmary, where he hanged himself, March 3.

James Churchill Hanchett ⊕ Detroit; Chicago Homeopathic Medical College, 1888; member of the Utah State Medical Association; medical director of the Maccabees; aged 69; died, March 28, in the Henry Ford Hospital, of erysipelas and acute nephritis.

James Marsh McLean, Bay City, Mich.; University of Toronto Faculty of Medicine, Toronto, Ont., Canada, 1910; member of the Michigan State Medical Society; aged 47; on the staff of the Mercy Hospital, where he died, February 28, of pneumonia.

Issi Otto Pond ⊕ Perry, Iowa; State University of Iowa College of Homeopathic Medicine, Iowa City, 1901; past president of the Dallas County Medical Society; on the staff of the Kings Daughters Hospital; aged 60; died, March 15, of heart disease.

William Holcombe Aiken, Tuscaloosa, Ala.; Tulane University of Louisiana School of Medicine, New Orleans, 1915; served during the World War; connected with the Veterans' Administration Facility; aged 50; died, March 11, of heart disease.

Melvil S. Coxe ⊕ Dunkirk, N. Y.; University of Buffalo School of Medicine, 1904; for many years a member of the local board of health; on the staff of the Brooks Memorial Hospital; aged 56; died, April 8, of cerebral hemorrhage.

John Gill Lilly, Tupelo, Miss.; Tulane University of Louisiana Medical Department, New Orleans, 1899; member of the Mississippi State Medical Association; on the staff of the Tupelo Hospital; aged 61; died, March 1, of heart disease.

Reginald David Graham ⊕ Duluth, Minn.; Chicago College of Medicine and Surgery, 1915; on the staff of the Duluth Hospital; aged 49; died, Dec. 26, 1933, of carcinoma which developed in roentgen burns of the hands.

William Horner Gardner, Pittsburgh; Western Pennsylvania Medical College, Pittsburgh, 1899; member of the Medical Society of the State of Pennsylvania; aged 72; died, March 23, of hypostatic pneumonia.

George William Lewis, Wilson, N. C.; University of Maryland School of Medicine, Baltimore, 1886; member of the Medical Society of the State of North Carolina; aged 70; died, February 16, of arteriosclerosis.

Arminius Hank Evans, Saxton, Pa.; Medico-Chirurgical College of Philadelphia, 1892; member of the Medical Society of the State of Pennsylvania; formerly member of the school board; aged 76; died, March 5, of cerebral hemorrhage.

Frank Baker Hiller ⊕ Kansas City, Mo.; Rush Medical College, Chicago, 1891; formerly secretary of the state board of health of Missouri; served during the World War; aged 64; died, March 18, of heart disease.

Calvin Hawthorne Childress ⊕ Norfolk, Va.; Medical College of Virginia, Richmond, 1915; served during the World War; aged 42; died suddenly, April 1, on board the steamship *Robert E. Lee,* of angina pectoris.

Theodore E. Ingram, Marietta, Pa.; Jefferson Medical College of Philadelphia, 1885; member of the Medical Society of the State of Pennsylvania; aged 75; died, April 2, in a hospital at Wernersville.

John Cornelius Klutho, Los Angeles; Missouri Medical College, St. Louis, 1898; member of the California Medical Association; aged 58; was found dead, March 16, of a self inflicted bullet wound.

Joseph Muir, New York; University of the City of New York Medical Department, 1884; aged 69; died, February 8, in the Mount Sinai Hospital, of chronic nephritis, uremia and chronic myocarditis.

A. Jerome Hermann, Middleburg, Pa.; Medico-Chirurgical College of Philadelphia, 1897; for many years county coroner; aged 62; died, March 10, in the Geisinger Memorial Hospital, Danville, of uremia.

Wyllys K. Ingersoll, Philadelphia; New York Homeopathic Medical College, 1879; aged 77; on the staff of the Hahnemann Hospital, where he died, March 23, of carcinoma of the prostate.

Ottis Dee McCoy, Wheeling, W. Va.; College of Physicians and Surgeons, Baltimore, 1904; member of the West Virginia State Medical Association; aged 56; died, March 13, of pneumonia.

John Joseph Ogle, San Diego, Calif.; Bennett College of Eclectic Medicine and Surgery, Chicago, 1890; aged 87; died, February 4, in the Patton (Calif.) State Hospital, of chronic myocarditis.

Minot Kniffin Kellogg, Augusta, Ga.; University of Georgia Medical Department, Augusta, 1933; intern at the University Hospital; aged 24; died, February 10, of lobar pneumonia.

August George Ludwig Rindler, Davenport, Iowa (licensed, in Iowa in 1887); aged 80; died, March 22, in the Mercy Hospital, of injuries received when struck by an automobile.

Maurice Markel, Pittsburgh; Jefferson Medical College of Philadelphia, 1929; aged 35; died, January 14, in St. Francis Hospital, Miami Beach, of injuries received in an automobile accident.

Thomas Eugene Keaveney, Keithsburg, Ill.; Creighton University School of Medicine, Omaha, 1926; aged 32; died, March 24, in the Mercy Hospital, Burlington, Iowa, of brain tumor.

Albert H. Gilbrech, Clarendon, Ark.; Illinois Medical College, Chicago, 1904; member of the Arkansas Medical Society; aged 58; died suddenly, February 27, of coronary occlusion.

Ulysses Grant Risser ⊕ Campbelltown, Pa.; Jefferson Medical College of Philadelphia, 1897; aged 62; died, February 10, of carcinoma of the lesser curvature of the stomach.

Rufus Acous Harlan, Hillsboro, Iowa; College of Physicians and Surgeons, Keokuk, 1878; Hahnemann Medical College and Hospital, Chicago, 1884; aged 80; died, February 24.

Allen Morris Kincheloe, Hardinsburg, Ky.; Kentucky School of Medicine, Louisville, 1870; formerly county health officer; aged 86; died, March 6, of cerebral hemorrhage.

Horace Rinaldo Minnick, Bellflower, Mo.; Cincinnati College of Medicine and Surgery, 1879; member of the Missouri State Medical Association; aged 80; died, February 14.

Alexander Boyd Montgomery ⊕ Long Beach, Calif.; Rush Medical College, Chicago, 1897; served during the World War; aged 63; died, March 11, of acute septic arthritis.

Joseph Exter McDowell, National Military Home, Calif.; University of Nashville (Tenn.) Medical Department, 1905; aged 57; died, January 4, of carcinoma of the prostate.

Daniel Gordon Milton, Webster, Fla.; Georgia College of Eclectic Medicine and Surgery, Atlanta, 1907; aged 62; died, March 3, of angina pectoris and arteriosclerosis.

Fred Howard Heming, Meaford, Ont., Canada; University of Toronto Faculty of Medicine, 1892; local medical health officer; aged 63; died, January 3, of heart disease.

Charles Wesley Card, San Francisco; Cooper Medical College, San Francisco, 1884; aged 76; died, February 11, of cerebral hemorrhage and arteriosclerosis.

John J. Rife, Boston, Ind.; Cincinnati College of Medicine and Surgery, 1869; for many years health officer of Boston; aged 92; died, February 17, in Richmond.

James Bethuel Keith, Imperial Beach, Calif.; University of the City of New York Medical Department, 1894; aged 64; died, March 12, of cerebral hemorrhage.

William Raseboom Abbott, Cincinnati; Miami Medical College, Cincinnati, 1908; on the staff of St. Mary's Hospital; aged 49; died, March 26, of pneumonia.

Mary Temperance Cole, Monmouth, Ore. (licensed in Oregon in 1891); aged 82; died, February 25, in the Salem (Ore.) Deaconess Hospital, of senility.

Julius J. Stagg, Eunice, La.; Tulane University of Louisiana Medical Department, New Orleans, 1898; aged 58; died, February 19, of cerebral hemorrhage.

Albert Jacob Berger, San Francisco; College of Physicians and Surgeons of San Francisco, 1904; aged 56; died, February 10, of chronic bronchitis.

Frank Wesley Carpenter, San Francisco; Cooper Medical College, San Francisco, 1894; aged 63; died, January 31, of arteriosclerosis and heart disease.

Milton R. Fisher, Palmyra, Pa.; Jefferson Medical College of Philadelphia, 1877; aged 82; died, March 3, in the Good Samaritan Hospital, Lebanon.

Charles Abraham Mayor ⊕ Philadelphia; Temple University School of Medicine, Philadelphia, 1910; aged 54; died, March 23, of heart disease.

Claude A. Dundore ⊕ Philadelphia; Jefferson Medical College of Philadelphia, 1887; aged 67; died, March 8, of heart disease and nephritis.

Patrick Joseph Mooney, Brooklyn; University of the City of New York Medical Department, 1893; aged 63; died, February 17, of heart disease.

William Gibson Black, Nashville, Tenn.; College of Physicians and Surgeons, Baltimore, 1883; aged 76; died, March 26, of thrombosis.

August Schmidt, Los Angeles; Marion-Sims College of Medicine, St. Louis, 1892; aged 69; died, February 15, of carcinoma of the hand.

Ben Russell ⊕ Sheffield, Ill.; College of Physicians and Surgeons, Baltimore, 1896; aged 70; died, March 14, of acute dilatation of the heart.

Alphonse M. Schnorr, Philadelphia; Jefferson Medical College of Philadelphia, 1908; aged 70; died, March 27, of cerebral hemorrhage.

A. D. Kelly, Covington, Ky.; Meharry Medical College, Nashville, Tenn., 1896; aged 73; died, February 26, of acute interstitial nephritis.

John Finland Haas, Kelleys Island, Ohio; Starling Medical College, Columbus, 1896; aged 70; died, February 27, of heart disease.

Leatha Ruth Tyler Frei, Santa Rosa, Calif.; University of Oregon Medical School, Portland, 1908; aged 50; died, February 17.

Allen Forrest Latta ⊕ Cumberland, Ohio; Louisville (Ky.) Medical College, 1895; aged 60; died, February 22, of coronary occlusion.

Herman Silverman, Los Angeles; Baltimore University School of Medicine, 1896; aged 66; died, March 6, of myocarditis.

David Nelson Bacon ⊕ Bakersfield, Calif.; Chattanooga (Tenn.) Medical College, 1892; aged 72; died, February 12.

John Ledbetter, Eatonton, Ga.; College of Physicians and Surgeons, Baltimore, 1886; aged 78; died, February 3.

Edmund J. Bolio, Detroit; Michigan College of Medicine, Detroit, 1884; aged 87; died, March 1, of pneumonia.

John William Harpster, Anaheim, Calif.; Rush Medical College, Chicago, 1891; aged 65; died, February 18.

William Taylor McElroy, Beardstown, Ill.; St. Louis Medical College, 1872; aged 79; died, March 24.

John R. Piercey, Prescott, Ark. (licensed, Arkansas, 1903); aged 57; died, February 26, of diabetes mellitus.

Correspondence

A FREE IODINE SOLUTION, SIMILAR TO PREGL'S SOLUTION, USED IN THE TREATMENT OF CHRONIC TRAUMATIC AND ARTHRITIC EFFUSIONS

To the Editor:—At the annual meeting of the American Orthopedic Association, held at Toronto in June 1932, I read a paper entitled "Clinical and Experimental Observations with Regard to the Injection of Certain Agents, Pregl's Solution, in Chronic Arthritic Joints." This paper was published in the *Journal of Bone and Joint Surgery* (**15**:483 [April] 1933) and summarized my observations in connection with the use of a solution that I had found described in Queries and Minor Notes in THE JOURNAL, Nov. 10, 1923, p. 1628, in reply to a request with regard to the use of Pregl's solution of iodine in cases of varicose veins, and the formula was copied apparently from the *Schweizerische Apotheker-Zeitung* **60**:322, 350.

Having used various dilutions of tincture of iodine with but limited success in certain cases of chronic effusions of the knee joint, with considerable temerity I began to use a preparation following the formula referred to in the preceding paragraph, both clinically and experimentally, with rather satisfying results, particularly when the solution was fresh. However, as others began to make up and use this solution, it was realized that it did not fulfil the implied requirements of containing from 0.035 to 0.04 per cent of free iodine. Nor did it maintain the color test as outlined in Queries and Minor Notes. I received so many inquiries with respect to these inconsistencies that Don M. Bavis, the chemist in my laboratory, began a series of experiments and reviewed much of the available literature. He was unable to find the quotation from the *Schweizerische Apotheker-Zeitung,* but in the *Zentralblatt für Chirurgie* **49**:1050, 1922, R. Dittrich and A. Herman give a formula for Pregl's solution of iodine which reads exactly the same as the one quoted in THE JOURNAL with the exception that 6 Gm. of crystalline sodium carbonate is used instead of 16 Gm. The solution made by this corrected formula agrees in every particular with the description that Pregl himself gives and contains a slight excess of free iodine over 0.04 per cent, freshly made up. This preparation, kept in a glass stoppered bottle, tightly corked, at room temperature for one month, and checked daily with hundredth normal sodium thiosulphate, maintained the 0.04 per cent free iodine. After about one and one-half months, under the same conditions and frequent opening of the bottle, there was still 0.035 per cent of free iodine present. This solution, when kept in an ice chest, would maintain from 0.04 to 0.035 per cent of free iodine for six months. Apparently the lack of free iodine and the loss of color in the formula as published and previously used by me was due to the fact that there is an excess of sodium carbonate, as the free iodine was rapidly converted into an iodide in the presence of an excess of alkali.

I have been using this revised solution in the treatment of certain cases of myofascitis, the report of which, together with bacteriologic observations, is being prepared for publication. The correction of this published formula will aid greatly in rectifying the estimated value of this free iodine solution in the treatment of chronic joint effusions.

The corrected formula is as follows: To 3 Gm. of finely powdered iodine in a flask, add 6 Gm. of crystallized sodium carbonate, or 2.22 Gm. of the anhydrous form, dissolved in about 30 cc. of distilled water. Stopper and place in an incubator over night, or until all the iodine is in solution. The next day add 4 Gm. of sodium chloride and dilute to 1 liter. Titrate with hundredth normal thiosulphate. If it shows from 0.035 to 0.04 per cent of free iodine, use it as it is. If it is too strong, warm gently until it is brought down to that figure. Keep in a glass stoppered bottle in an ice chest.

J. E. M. THOMSON, M.D., Lincoln, Neb.

RICKETS RARE IN PUERTO RICO

To the Editor:—In THE JOURNAL, March 24, I have noted the editorial comment pointing out that rickets is undoubtedly a rare disease in Puerto Rico. In Public Health Bulletin 138, which is a report of the tuberculosis survey of the island of Puerto Rico made by Surgeon J. G. Townsend of the Public Health Service from Oct. 11, 1922, to April 18, 1923, this observation was made. The report also contains useful information regarding the prevalence of disease as related to economic conditions.

R. C. WILLIAMS, M.D., Washington, D. C.
Assistant Surgeon General, U. S.
Public Health Service.

DANGEROUS DRUG REACTIONS

To the Editor:—Too little emphasis has been given to the possibility that a drug may have, besides its direct action, an indirect or latent and potential effect. Thus, cinchophen appears to cause liver injury only in sensitive individuals, in contradistinction to hydrazine, which produces liver damage in all subjects. The recent work of Watkins (*Proc. Staff Meet., Mayo Clin.* **8**:713 [Nov. 22] 1933) and of Madison and Squier (THE JOURNAL, March 10, p. 755) indicates quite definitely that compounds such as amidopyrine and various barbituric acid derivatives can cause granulocytopenia; but unlike the action of benzene, which consistently attacks bone marrow, the condition is produced in only a small percentage of cases. There has been a growing tendency to look on this latent toxic action of drugs as allergic. In a recent article (*Am. J. M. Sc.* **187**:155 [Jan.] 1934) I proposed the theory that drugs which produce allergic reactions such as urticaria, angioneurotic edema and vasomotor disturbance may perhaps also cause a severe inflammatory reaction, which may terminate in necrosis, such a reaction being comparable to the Arthus phenomenon. The acute yellow atrophy of the liver and the bone marrow injury in granulocytopenia may well be explained on this basis. Such a concept necessitates accepting the possibility that any drug giving rise to mild allergic signs such as urticaria may in sensitive individuals produce serious visceral damage. There is no absolute specificity as to the type of tissue attacked, although cinchophen appears to have a predilection for the liver and amidopyrine for bone marrow. Arsphenamine is known to produce both liver and bone marrow injury. Undoubtedly other tissues can be affected; Petty (*Brit. M. J.* **2**:442 [Sept. 8] 1928) reported a case of pancreatitis that appeared after cinchophen.

It is to be emphasized that any drug in which the incidence of urticaria is high should be administered with trepidation. One should be fully aware of the potential dangers before using a new drug like alpha-dinitrophenol, which, according to Tainter, Stockton and Cutting (THE JOURNAL, Nov. 4, 1933, p. 1472), causes urticaria with fair frequency. Even the direct physiologic action is so potent that it should demand the vigilance of a physician trained in recognizing the manifold and often baffling manifestations of drug toxicity. It must be recognized that at present nothing is known of the possible late sequelae, which in the case of both cinchophen and amidopyrine went unrecognized for many years. Judging

from the reports available it is fairly clear that the incidence both of toxicity and of hypersensitivity as manifested by urticaria is much higher for dinitrophenol than for cinchophen. The relatively wide use of dinitrophenol is therefore amazing, since few physicians now have the temerity to prescribe cinchophen. The indiscriminate use of any drug is deplorable but of as powerful an agent as dinitrophenol is distinctly disquieting.

Since drugs can cause obscure pathologic changes, the importance of a careful investigation of the patient's drug habits as an essential part of every anamnesis cannot be stressed too strongly.

ARMAND J. QUICK, M.D., New York.

GRANULOCYTOPENIA

To the Editor:—I should like to take this opportunity to make an addition to the report of two cases of granulocytopenia, published in THE JOURNAL, February 17. After the death of these patients it was discovered that they had used an undedetermined, but quite large quantity, of amytal compound, over a fairly long period of time. In the light of recent investigations this fact has seemed to be of possible significance, both in helping to confirm the diagnosis and as an additional link in the chain of evidence against the barbiturates, or amidopyrine, or both, as etiologic agents in this disease.

PAULINE ZINNINGER, M.D., Canton, Ohio.

HEREDOFAMILIAL ANGIOMATOSIS WITH RECURRING EPISTAXIS

To the Editor:—J. F. Madden of the University of Minnesota Medical School, in his paper on "Generalized Angiomatosis" (THE JOURNAL, February 10, p. 442), erroneously states that "hereditary hemorrhagic telangiectasia was first reported by Sutton, in 1864, as internal hemorrhages and telangiectasia of the skin." . . . Erasmus Wilson, in 1869, called the condition eruptive angiomas. Chiari, in 1883, regarded it as a hemophilia of slight degree; Rendu, in 1896, as juvenile hereditary epistaxis associated with multiple hemorrhagic telangiectasias of the skin and mucous membranes; Ullman, in 1900, as angiomatosis."

Since H. Gawen Sutton of the Metropolitan Free Hospital published his paper on "Epistaxis" (*M. Mirror,* London **1**:769-781 [Dec.] 1864), I was the first to refer to his work in my publications.

Sutton discussed the relation of rheumatic fever and tuberculosis to epistaxis and the connection between epistaxis and hemoptysis. He mentions cases of familial hemoptysis and familial epistaxis. But nowhere in his paper does he report a true instance of "Heredofamilial angiomatosis (Goldstein) with recurring heredofamilial epistaxis" (Rendu-Osler-Weber's disease). Sutton's cases are no different than those reported by W. Fordyce in 1784 (Haemorrhagia, Fragmenta Chirurgica et Medica, London, T. Cadell, 1784, p. 41), J. P. Frank ("Nasenbluten," "Mundblutung," in Specielle Pathologie and Therapie, "Förstner and Gerold, Berlin **1**:483, 490, 1840), Babington (*Lancet* **2**:362, 1865), Verneuil (1894), Gastou (1894) and others. Erasmus Wilson (1869) did not report a typical familial case of Rendu-Osler-Weber's disease. G. Richelot (*Union méd.* **1**:179-180 [April 10] 1847) reported an instance of familial epistaxis.

J. W. Legg (*Lancet* **2**:856 [Dec. 16] 1876), Chiari (1883, 1887), H. Senator (*Klin. Wchnschr.* **28**:1-5 [Jan. 5] 1891) and Henri L. J. M. Rendu [*Bull. et. mém. Soc. méd. d. hôp. de Paris* **13**:731-733 [Oct. 23] 1896; *Gaz. d. hôp.* **69**:1322-1323 [Nov. 24] 1896) first differentiated this clinical entity as atypical hemophilia or pseudohemophilia.

Madden overlooked the reports by Fordyce (1784), Elsaesser (1826), Frank (1840), Richelot (1847), J. Wickham Legg (1876), Senator (1891), and the term "pseudohemophilia" used by Rendu (1896).

Eales (1892), Kennan (1902), Swanton (1907), Bramwell (1907) and Davidson (1907) also reported cases of familial epistaxis, but they do not mention telangiectases.

Further reference may be made to my publications (*Arch. Int. Med.* **27**:102 [Jan.] 1921; **48**:836-865 [Nov., part 1] 1931; *Arch. Dermat. & Syph.* **26**:282-308 [Aug.] 1932; *Acta Dermato-Venereologica* **13**:661-694 [Dec.] 1932; *Tr. Am. Therap. Soc.,* 1932, pp. 47-64, and *M. Times,* London **61**:105-107 [July] 1933). In 1930 I first coined and used the name "Rendu-Osler-Weber's disease," which has since been adopted by French writers.

HYMAN I. GOLDSTEIN, M.D., Camden, N. J.

Queries and Minor Notes

ANONYMOUS COMMUNICATIONS and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

VINCENT'S INFECTION OF THE MOUTH

To the Editor:—I would like to be permitted to take issue with portions of your answer directed to the query entitled "Vincent's Infection of the Mouth" (THE JOURNAL, February 24, p. 639).

The majority of the dental profession, especially those interested in and devoted to the pursuit of disorders of the oral mucous membrane, have in recent years recognized the existence of a chronic Vincent's infection. The literature itself has been replete with references ascribed to this type of Vincent's infection.

Rosenthal says (*J. Am. Dent. A.* **20**: 438-446 [March] 1933): "Some years ago, I stated that Vincent's infection was entirely an acute process. Observation of many hundreds of cases and records of colleagues revealed no instance of chronic infection as we understand it today. Now more than 60 per cent of my cases are subacute or chronic. This type of Vincent's infection is painless. It closely resembles periodontoclasia or a gingivitis which will not respond to the usual treatment. Considerably more difficulty is encountered in overcoming chronic Vincent's infection than in combating the acute forms."

Thompson (*J. Am. Dent. A.* **18**: 1405-1412 [Aug.] 1931) classifies Vincent's infection into two forms: acute and chronic. He says: "The chronic form is not characterized by pain or soreness and generally not by any systemic disturbance. Hemorrhage is the outstanding symptom and destruction of the soft tissue is common. There is not local indication of the disease. A smear is positive. Intensive and prolonged treatment is required in these cases." Taylor and Repetto in a discussion of this paper concur in their opinions with Thomson relative to the presence of a chronic type of Vincent's infection.

Merrit says (Periodontal Diseases, New York, Macmillan Company, 1930): "There is a form of Vincent's infection lacking in many of the sympotms of the acute type that is very much more common and which is often incorrectly diagnosed. This is the chronic or subacute type in which there is no slough and no marked objective symptoms."

Albray (*Dental Cosmos* **75**: 878-883 [Sept.] 1931), in a paper delivered before the New York Academy of Medicine, states that "in some mouths the infection will persist in subacute form for long periods of time, causing only slight discomfort and gradual destruction of the soft tissues and the alveolar process about the teeth."

It is true that fusiform bacilli and spirochetes may be found in pockets surrounding third molars, as described, but this does in no full measure explain the securing of continued positive Vincent's smears from the remaining portions of the gums and gingivae of the patient in question.

LEWIS FOX, D.D.S., South Norwalk, Conn.

To the Editor:—May I offer a criticism of your reply to a query signed M.D., Connecticut, relative to Vincent's angina?

1. The onset need not be rapid but may well be extremely slow going and then may result in an acute exacerbation with superficial or deep necrosis of gums, tonsils, tongue or oral mucosa; this stage may follow weeks of very mild tissue infection. 2. There is not always a fetid, foul odor. The odor may be scarcely noticeable and depends on the stage of the disease and on the degree of cleanliness achieved. 3. There is not necessarily an increased flow of saliva. 4. The temperature may not be above 99 in the subacute or chronic cases or it may range to 105, depending on the severity of the infection and the tissues involved. 5. There is not necessarily "extreme malaise, weakness and depression." These symptoms vary tremendously. 6. I have never seen mental depressions a pronounced symptom in any case.

I have seen scores of chronic and subacute infections preceding and following the acute infection. I agree that the presence of fusiform bacilli and spirochetes do not make a certain diagnosis of Vincent's infection, but one learns to diagnose these lesions clinically. The absence of spirochetes and fusiform bacilli in repeated smears may be of definite negative evidence.

Your concluding sentence, stating that "intravenous injection of neoarsphenamine has never been justified in the treatment of Vincent's

infection either theoretically or clinically, and has been generally discarded by the practitioners most experienced in the study and treatment of the infection" is especially controversial. I treated more than 400 patients in one acute outbreak and have treated scores of sporadic cases since. Not only was intravenous neoarsphenamine or sulpharsphenamine the only successful method of treatment but there was excellent clinical evidence that it was truly specific. I am enclosing two papers on the subject. Since these papers were written I have seen further clinical proof of the efficacy of intravenous arsphenamine. For example, a patient with an acute tonsillitis, apparently due to Vincent's infection, improved spontaneously after having a temperature of 103 each afternoon for a week. Smears were positive. Instead of entirely clearing up, the tonsils remained reddened, the crypts showing a dirty grayish yellow exudate and the temperature running to 99.6 or 100 F. for another ten days. As in all previous cases, there was complete resolution, normal temperature and no further sore throat within forty-eight hours after the first injection of neoarsphenamine.

I believe the theory that first prompted the use of one of the arsphenamines in these infections was based on the fact that a spirochete is present as a causative organism in Vincent's angina as it is in syphilis and in African sleeping sickness. Therefore it was reasonable to hope that a similar arsenical would be as nearly specific in Vincent's infection as in syphilis. My experience seems to bear out this theory.

H. J. HARRIS, M.D., Westport-on-Lake Champlain, N. Y.

ANSWER.—About thirty years ago Dr. Thomas L. Gilmer described the condition in the mouth which he called an acute ulcerative gingivitis. He and the pathologist for St. Luke's Hospital, Chicago, studied the condition and found that it was caused by symbiotic action of fusiform and spirochetal organisms. During the war this condition was common among the soldiers and was called trench mouth. Following the war it was almost epidemic in some places, notably during and after the influenza epidemic. The etiologic relation of fusiform and spirochetal organisms in this condition became well known in both the medical and the dental profession but spirochetal and fusiform organisms are almost universally recoverable from inflammatory and ulcerative conditions in the gingival pockets, although the symptoms are entirely different from those of acute ulcerative gingivitis. As the practice of making smears and staining for bacteria in such cases has increased in the last few years, the presence of these organisms has been assumed to imply and has been called Vincent's infection, whereas probably the organisms are not related to the etiology of the condition; at least, no satisfactory evidence of such relationship has been made. The condition is given importance in the mind of the patient and treatment is more rigorously executed when the patient is told that he has trench mouth. An early piece of work on this subject was Acute Ulcerous Gingivitis, by Thomas L. Gilmer (*Dental Review* **20**:459, 1906). Probably the most authoritative work on this subject is Oral Spirochetes and Related Organisms in Fuso-Spirochetel Disease, by David T. Smith, M.S., associate professor of medicine, Duke University School of Medicine, Durham, N. C., published in 1932 by the Williams and Wilkins Company, Baltimore.

Cases of acute ulcerous gingivitis or stomatitis may be divided into two groups: those which are superficial and of easy access —lesions about the teeth, the buccal mucosa and the tongue— and those which are deep and therefore inaccessible—the tonsils and throat. During the World War, the most popular treatment for "trench mouth" was arsphenamine dissolved in glycerin and applied locally. Gradually this has given way to the more simple and less expensive remedies, such as solution of potassium arsenite, solution of sodium perborate, hydrogen dioxide, 5 per cent chromic acid, and "acriviolet" (a mixture of acriflavine and gentian violet, equal parts). Thorough irrigation with physiologic solution of sodium chloride or iodosaline solution to remove the necrotic material may be followed by the application of alkalinized solution of hydrogen dioxide and finally by painting the area with compound tincture of benzoin. This is a slight modification of the treatment first recommended by Thomas L. Gilmer (*Dental Review* **20**:459, 1906). Without exception, the lesions show improvement in twenty-four hours and are completely healed within a few days. When this simple procedure yields such uniform success, there is nothing to recommend a more elaborate plan. In the *Dental Cosmos* (**76**:329, 1934) the Beldings, in discussing the use of neoarsphenamine and glycerin or solution of potassium arsenite, state that "if a patient is unable to afford the neoarsphenamine, this may be omitted without seriously affecting the spirocheticidal activity."

Cases of acute ulcerous gingivitis sometimes develop while the patient is under antisyphilitic treatment with arsphenamine and mercury. This undoubtedly is explained on the ground that the mercury has increased the amount of gingival irritation and that the spirochetes have become "arsenic fast."

When the ulceration involves the tonsillar crypts or is penetrating deep into the pharyngeal walls, local treatment should be supported by the use of arsenicals. In such cases, intravenous injections of arsphenamine of sulpharsphenamine may be advisable. As is well known, this treatment is not without its untoward effect. It is decidedly unsafe to use the arsphenamine unless one is prepared to meet emergencies.

ALLERGY TO CAT HAIR

To the Editor:—A girl, aged 9 years, suffering from severe asthmatic attacks most of her life, was brought to me by the state bureau of child welfare. I spent several months investigating by means of food proteins and bacterial proteins, and even gave her a course of injections of an autogenous mixture. The attacks were not influenced much. The history gives no clue as to seasonal influences. It was only when I tried to test her with epidermal extracts that I found that cat gave her a definite skin reaction with pseudopods. She lives in the country, and though she has had no cat in her house for several years, there is an indefinite history that cat might be the cause. Owing to the fact that she lives quite a distance from my office and that it is considerable trouble to bring her in regularly for treatment, and also because the child is being treated without any remuneration, I should like to hear an expression of the possibilities of her being cured by desensitization with protein extracts from cat epidermis before giving the treatment. Owing to the severe nature of the attacks when they come, I would appreciate an early response. Please omit name.

M.D., Connecticut.

ANSWER.—It would seem that exposure to cat hair might be the precipitating factor in this child's attacks of bronchial asthma. Cat hair is a common cause of such spells, more common than is the hair of dogs; a positive test to cat hair usually means that the patient is clinically hypersensitive to cat hair.

Cat hair is frequently encountered when there is no direct exposure to cats.

Coca in his book (Asthma and Hay Fever, by Coca, Walzer and Thommen) writes as follows:

> Pelts of the domestic cat (Felis domestica) are gradually assuming importance as furs. The skins are dressed, dyed to imitate other furs, and sold under names suggestive of more costly skins to be used for those purposes for which genuine furs are employed.
>
> Cat skins are commonly used for making carriage robes, and for lining caps, coats, gloves, slippers, etc.
>
> Cat hair is employed as a covering for toy animals and as an adulterant of hair stuffing bedding and furniture.
>
> Other members of the cat family also supply furs. Chief among these are: leopard (Felis pardus), panther (F. panthera), wild cat (F. catus), jaguar (F. onca), tiger (F. tigris), lion (F. leo), and the lynx (F. lynx). The latter is also known as the caracul or Persian lynx (Felis or Lynx caracul). This is to be distinguished from Karakul, which is Astrakhan obtained from the pelts of young lambs.
>
> Civet, cheetah and genet are also members of this family.

Desensitization can be readily accomplished by a series of injections. It is usually sufficient to begin with 0.02 cc. of a 1:100,000 dilution, although if the patient is extremely hypersensitive it may be well to begin with a 1:1,000,000 or even a 1:10,000,000 dilution. Injections are to be given subcutaneously about twice a week, with increases (if no severe local or if no general reaction occurs) of about 50 per cent for each dose. The final dosage has not been definitely agreed on but probably 0.10 cc. of a 1:100 dilution is high enough.

There is considerable controversy among allergists as to the advisability or necessity of such desensitization. Elimination of cats and products made from cat hair is usually sufficient. However, if exposure is unavoidable and if contact with cats brings on attacks of asthma, desensitization is definitely indicated and should be carried out. The result of such a series of injections is usually a success.

The material for the treatment can be purchased from several pharmaceutic houses.

USE OF NEOARSPHENAMINE IN VINCENT'S INFECTION

To the Editor:—In Queries and Minor Notes in THE JOURNAL, February 24, p. 640, the statement is made that "intravenous injection of neoarsphenamine has never been justified in the treatment of Vincent's infection, either theoretically or clinically, and has been generally discarded by the practitioners most experienced in the study and treatment of the infection." Please explain in detail the treatment of this disease today; also explain why this statement is made in the face of clinical evidence that the condition does clear up following the use of the arsenical. What is done in Vincent's infection of the lung? I know there have been two schools of argument but I think your statement is strong. Please give me the proof.

G. R. CLAYTON, Lafayette, Ind.

ANSWER.—The statement "intravenous injection of neoarsphenamine has never been justified in the treatment of Vincent's infection, either theoretically or clinically," taken by itself and separated from the context, cannot be supported. The answer to the previous question spoke only of the treatment of acute ulcerative gingivitis, which has been more or less improperly called Vincent's infection. The statements made in regard to

the treatment of acute ulcerative gingivitis obviously would not apply to Vincent's infection of the lung. The statement quoted in the query is based on the following facts: In acute ulcerative gingivitis a mixed culture attacks local areas of surface, producing rapid surface ulceration and necrosis. The bacteria do not penetrate deeply into the tissues. Theoretically, therefore, attack from the surface would be expected to be more effective than to attempt to reach the bacteria through drugs introduced into the blood stream. Clinically, this condition not infrequently develops in patients on treatment with neoarsphenamine. Next, under direct local attack, conditions improve within twenty-four hours and always clear up promptly without the use of intravenous injections. The essentials of treatment of acute ulcerative gingivitis are cleansing of the surfaces and removal of the membrane, and frequent application of substances that liberate oxygen, such as sodium perborate, hydrogen dioxide, 5 per cent chromic acid, or a mixture of acriflavine and gentian violet. The areas may be protected by painting with compound tincture of benzoin. When the areas attacked can be reached, they always yield rapidly to this treatment.

NONALLERGIC COSMETICS

To the Editor:—I have a patient who develops a dermatitis on using any of the common foundation and cleasing creams, such as DuBarry, Max Factor or Madame White. I should like to know what I can recommend to this patient as a beauty preparation and also what is the irritating factor in these creams. Please omit name.

M.D., North Dakota.

ANSWER.—There are several companies manufacturing lines of cosmetics that are not irritating to the large majority of individuals. Most of such preparations are free from orris root, rice, lead, mercury and other chemicals that might be irritating to the skin.

Orris root, which is the rhizome of Iris germanica, Iris pallida and Iris florentina, has a pale flesh tint and a delicate odor of violets. It is widely used in the preparation of various kinds of cosmetics, including many foundation and cleansing creams. It is one of the main causes of dermatitis in individuals who are sensitive to it.

Among the preparations that may be recommended are the Marcelle products manufactured by C. W. Beggs Sons & Company, 1741 North Western Avenue, Chicago; Macauley preparations, made by Macauley Laboratories, P. O. Box 6, Flatbush Station, Brooklyn; the Mansfield preparations of E. R. Mansfield Company, Ltd., Los Angeles; Frost's preparations, produced by Frost's, Memphis, Tenn., and Non-Allergic Products, manufactured in St. Louis.

DETECTION OF AMEBAS IN STOOLS

To the Editor:—In a small town where there is no laboratory, only the study of fresh, warm stool specimens is possible for amebas. The method of Riparte and Petit as outlined for concentration is practical, but is there not an easier way to fix and stain for visualization of amebic cysts than by the hematoxylin method? If so, outline. Kindly omit name.

M.D., California.

ANSWER.—The iron-hematoxylin method of staining amebas and their cysts is still the most reliable in spite of its time-consuming tediousness and the skill or luck required in its successful application. The iodine method is simple and is adequate for most purposes. A small drop of fecal emulsion and an equal drop of iodine solution (5 per cent iodine in 10 per cent potassium iodide) are placed on a slide and covered with a No. 1 cover glass. This technic reveals the internal structure of trophozoites and cysts adequately for diagnosis in most cases. It is frequently not satisfactory in the examination of cultures in which the active amebas may have taken up many starch granules.

Two other methods have been employed with success by some workers:

1. Modified Mallory's phosphotungstic acid hematoxylin. This stain is prepared as follows:

Solution A.	Hematoxylin (white crystals preferred)	0.2 Gm.
	Distilled water	160 cc.
	Dissolve by boiling	
Solution B.	Phosphotungstic acid	10 Gm.
	Distilled water	100 cc.
	Dissolve by boiling	

When cool, mix 80 cc. of solution A with 20 cc. of solution B. Allow the mixture to ripen for from one to five months in a covered, not stoppered, bottle in the sun, if possible. The ripening can be hastened by the addition of a drop or two of hydrogen dioxide.

Smears of optimal thickness from the specimen of feces are placed while still moist in warm (37 C.) Schaudinn's solution for from five to ten minutes.

Rinse in two or three changes of distilled water.

Place in the stain in a Coplin or other jar for from one to twenty-four hours. If the jar and stain are kept at incubator temperature, satisfactory results may be obtained by staining for from one to three hours.

Rinse in two or three changes of distilled water.

Place the slides for a few minutes successively in 50 per cent, 75 per cent and 85 per cent alcohol; then into 95 per cent and absolute alcohol for ten minutes each.

Clear in xylene and then on clove oil for from five to ten minutes each.

Blot, and mount in neutral balsam.

2. Recently a new method has been described by H. E. McDaniels (*Science* **79**:187 [Feb. 23] 1934):

To a drop of an emulsion of feces a drop of a saturated solution in methylene blue in methyl alcohol is added on a slide. This is covered with a No. 1 cover glass. "All fecal remains, with the exception of certain crystals, are stained dark blue and thereby merged with the rest of the dark blue field. The whole preparation may be searched with the low power objective in a very short time. Examination with the 4 mm. or oil immersion lens will show the nuclear chromatin of the amoebae and cysts to be selectively stained with the methylene blue. . . . Trophozoites are rounded up by contact with the methyl alcohol, but the nuclei may be seen distinctly, even in the presence of much ingested material. . . . The only precautions to be observed are to reduce the amount of light and to make thin preparations; either use small drops of fecal emulsion and staining solution, or use large cover slips to spread the mixture over a larger area."

DIABETES MELLITUS OR RENAL DIABETES

To the Editor:—I am writing you for your valued opinion of the case of a colleague in whom I am deeply interested and in whose case there seem to be certain points that make the diagnosis obscure. The discovery of sugar in the urine was made about two months ago by an insurance examiner, and though there are no subjective symptoms of diabetes he continues to show sugar in definite quantities on ingestion of only moderate amounts of carbohydrates. His sugar tolerance after 50 Gm. of sucrose is as follows:

	Blood Sugar, Mg. per 100 Cc.	Urine (Reduction to Benedict's Solution)
1. 12 hours fasting stomach	100	Negative
2. 15 minutes after intake	125	
3. 30 minutes after intake	182	Very slight
4. 45 minutes after intake	167	
5. 1 hour after intake	150	Definite
6. 2 hours after intake	105	Very slight
7. 3 hours after intake		Negative

The patient is 56 years of age; his height is 5 feet 6 inches (172.7 cm.); his normal weight 137 pounds (62 Kg.); he is well nourished, and the past history is irrelevant. His daily regimen has recently changed in that he has been obliged to drive his car 25 miles to and from his office and there seems to enter the factor of worry incidental to his personal affairs. The question arises as to this being a true diabetes mellitus in the making or one of renal origin. Please omit name.

M.D., Florida.

ANSWER.—It is difficult to make the differential diagnosis between diabetes mellitus and renal diabetes from the data furnished. The fact that, in this case, glycosuria is definitely associated with alimentation might be taken to favor the diagnosis of diabetes mellitus rather than a glycosuria of renal origin. However, the rule that renal diabetes is characterized by a lack of relationship between alimentation and glycosuria holds only in moderate or severe cases; i. e., when the renal threshold is considerably lowered. It is evident from the blood sugar curve cited that such is not the case here. At a blood sugar level of 182 mg. per hundred cubic centimeters the urine test was only "very slight." The fact that a "definite" urine sugar test was obtained as the blood sugar level fell toward 150 mg. may be due to the fact that the blood sugar level continued to rise for a short while before starting to drop.

From the high normal initial blood sugar level, from the fact that the blood sugar rose to a rather high peak and barely returned to the original level within two hours, and considering the probability that the renal threshold was not depressed, the diagnosis of the condition is a mild or early diabetes mellitus. However, the mention of a recently changed daily regimen and of worry incidental to personal affairs is important. Certain cases of mild hyperthyroidism may show changes in carbohydrate metabolism similar to those described. These changes are hardly distinguishable from those of uncomplicated diabetes mellitus, except for the presence of the symptoms usually associated with disturbances of the thyroid gland. It would therefore be well to examine the patient with this possibility in mind.

It is also suggested that a repetition of the carbohydrate tolerance test, using 100 Gm. of sugar instead of 50 Gm., would furnish a result of greater diagnostic significance.

WRITINGS OF PHYSICIST MILLIKAN

To the Editor:—In one of the editorials in THE JOURNAL, January 20, a quotation was given from an American physicist, R. A. Millikan. Kindly let me know more of the writings of this man. Has he published any of his works? What are they? Where did you find this quotation?

THOMAS ST. CLAIR, M.D., Latrobe, Pa.

ANSWER.—Prof. Robert A. Millikan is at present the director of the Norman Bridge Laboratory of Physics, and chairman of the Executive Council, of the California Institute of Technology at Pasadena. Previous to his transfer to California in 1921 he was professor of physics at the University of Chicago. He is one of America's most distinguished students in this field, having received the Nobel prize from the Royal Swedish Academy in 1923 for his studies on the electron. Dr. Millikan has written extensively on the relations of science to modern life and likewise on the possible interrelations of science and religion. At the present time he is active in the study of the cosmic rays.

The quotation to which our correspondent refers (in an editorial on "The Social Order and Human Health," THE JOURNAL, January 20, p. 215) was taken from Harris, F. S., and Butt, N. I.: Scientific Research and Human Welfare, New York, Macmillan Company, 1924, page 4.

Many of the more popular lectures of Dr. Millikan have been published in *Science* and similar magazines. A partial list of his writings includes:

"A Scientist Confesses His Faith," Chicago, 1923.
"Suicidal Nationalism," California Institute of Technology bulletin, 1924.
"Science and Life," Pilgrim Press, 1924.
"Evolution of Twentieth Century Physics," Annual Reports, Smithsonian Institution, 1927, pp. 191-199.
"Science and the New Civilization," New York, Charles Scribner's Sons, 1930.
"Radio's Past and Future," University of Chicago Press, 1931.
"Time, Matter and Values," University of North Carolina Press, 1932.
"Science and Modern Life," in The Creative Intelligence in Modern Life, University of Colorado semicentennial series, vol. V.
"Evolution in Science and Religion," New Haven, Conn., Yale University Press.

BRAIN TUMOR OR PSEUDO-UREMIA

To the Editor:—A white man, aged 32, has severe headache (worse in the morning), dizziness and vomiting. The vomiting has been projectile on two occasions but is always preceded by nausea. He is a coal man and has done heavy shoveling, riding on a rough truck and frequently works while his feet are wet. The sinuses and teeth are normal. The entire physical examination is negative except for loss of the plantar reflex, loss of the lower abdominal reflex, a marked Romberg sign and the fact that both optic disks are under slight pressure, the left more marked (2 diopters) with its medial margin blurred. The headache is described as arising low in the occiput and extending along the right side to the frontal region. During the past ten days the headache has been in the frontal area. The Widal test is negative; the blood Wassermann and spinal fluid Wassermann reactions are negative (spinal fluid under negligible pressure). A blood urea nitrogen test returned 64 mg. per hundred cubic centimeters. There is a trace of albumin in the urine, with two coarse granular casts to a field. The patient was put on digitalis, potassium citrate and a protein-free diet, and in three days the blood urea was down to 8 Gm. Comfort for two or three days was followed by violent occipital and frontal headache and dizziness. The blood urea nitrogen this time was 9 mg. The patient was now put on a regular (rather high protein) diet, and after four days of this the blood urea was 15 mg. During this period he would have two or three days of comfort, followed by violent headache, dizziness, and occasional nonprojectile vomiting. No increase in pressure was shown by the optic disks. For the past ten days the patient has been on a low protein diet, from 800 to 1,000 cc. of water daily, and potassium citrate. He has had no violent headache, only slight dizziness, and no vomiting. He sits up one hour each day but every other day complains of a slight frontal headache. Throughout his illness his pulse rate has remained between 74 and 82. The blood pressure is 120 systolic, 65 diastolic. The temperature ranges between 98.4 and 98.8. Frequent attacks of hiccup still persist. No localizing signs relative to brain tumor can be picked up. Would you kindly tell me the prognosis in this case? Is this now "pseudo-uremia"? Can anything particular in line of treatment be done? Please omit name.

M.D., Pennsylvania.

ANSWER.—From the data presented, one must conclude that this is almost certainly not a case of "pseudo-uremia" but one presenting evidence of local intracranial disease, quite probably of a neoplastic nature. The apparently abrupt onset with projectile vomiting and vertigo, and the disturbed reflexes, are significant. A papilledema of 2 diopters must be considered decidedly more than evidence of "slight pressure" and the asymmetry of the degree of disk choking speaks for local intracranial disease. The negative spinal fluid Wassermann reaction makes syphilis of the central nervous system highly unlikely, although not truly impossible. An increase in the content of the blood of urea nitrogen is not uncommon in instances of brain tumor, particularly when there has been much vomiting, with subsequent dehydration. The perfectly normal arterial tension with normal cardiac efficiency excludes any diagnosis of uremic or azotemic intoxication. It is hard to grasp the logic of the digitalis therapy, as no evidence of cardiac inadequacy was mentioned in the query. It is felt that the low protein diet, the digitalization, and the restriction of the fluid intake are not warranted by the reported observations. Remission of the intensity of symptoms is not infrequent in intracranial neoplastic disease; it is unjustifiable to assume that the transient improvement noted is necessarily attributable to the therapy instituted. The following suggestions appear appropriate from the data presented: 1. Further extensive neurologic studies, including careful mapping of possible areas of disturbed sensation, outlining the visual fields and, further, more exact studies of the spinal fluid pressure. 2. A liberal food and fluid intake. An increase in fluid intake is indicated all the more when azotemic retention occurs. The diagnosis and localization of brain neoplasms frequently tax the skill and ingenuity of the neurologist to the utmost.

EDEMA OF FEET IN TUBERCULOSIS

To the Editor:—I have been a specialist in tuberculosis many years and I am seeking information concerning a certain condition about which there is practically nothing in the literature. The condition is the gradual onset of edema on the feet, later accompanied by dyspnea, and always proving fatal within a few months after onset. It is unaccompanied by fever or rapid pulse, and while of course it is common in terminal cases, I have seen it in moderately advanced cases in persons up and about, often working. It usually is unaccompanied by any renal condition or cardiac condition. Of course in the approaching terminal cases there probably is a high grade of myocarditis from the long continued toxemia, but from my own observation it is not a manifestation of either cardiac or renal disease in many cases. And I should like to know the cause of this symptom complex. Of course, one can generalize and theorize and say it is a manifestation of toxemia; but, against that, it usually occurs in those who are quiescent as regards their pulmonary tuberculosis. I have tried repeatedly full cardiac stimulation and diuresis, but the course of the trouble is apparently uninfluenced by any medication; I have also tried intensive calcium therapy on the theory of undue liquefaction of the blood plasma, also without effect. Also the urinary output is usually normal in quantity as well as quality. A salt-free diet and limited fluid intake are also without results. In fact, every one of these patients has died in spite of every effort. Therefore I am anxious to have some explanation of this symptom complex and, of course, some efficient type of treatment to overcome it. In conclusion, I will say that while practicing in low altitudes I do not remember seeing this symptom complex. The altitude here is 6,000 feet.

DAVID KRAMER, M.D., Silver City, N. M.

ANSWER.—Like many other questions on edema, this one is difficult to answer. The type reported here appears to be a new observation.

Edema is due to faulty water exchange in the body, and this may in turn be due to several causes. A derangement of the organs that have to do with the movement of body water leads to edema. An insufficient heart may lead to "cardiac edema," and a derangement of the kidney to either nephritic or nephrotic edema. In addition, a long standing malnutrition or an interference with the brain stem may lead to edema. There is no theory, however, that can explain all aspects of edema from Starling's theory of the change of intravascular osmotic pressure to the chemical theory or to the derangement of a hypothetical nerve center. No doubt, changed osmotic pressure plays a part when other factors are present; no doubt, the change in ionic constellations or a colloid state within the cell is important. Perhaps there are central nervous system centers that through stimulation or suppression may lead to an interference with water movement that may result in edema. Yet none are altogether sufficient. It is possible that several factors operate in series aided by vicious cycles that almost always result.

For example, a gradually weakening heart will proportionately slow down water movement until the water depots (skin, muscles, liver and spleen) become saturated and overflow into the tissue spaces. This will also tend to decrease oxidation in the water depots, which in turn will change the ion constellations in the cells of these tissues. This will decrease the ability of the cell to hold water, so that progressive "syneresis" or a giving up of the water by colloids is the result. The same may be said concerning edema of nephritis and particularly nephrosis, in which the depletion of albumin leads to a lowering of osmotic pressure in the blood and a retention of water in the cells to the point of supersaturation, when free water appears in the tissue spaces. Nor can it be denied that a nerve impulse from a nerve center in the brain may also increase or decrease the water holding power of the cells.

How, then, may these various possibilities bear on the problem presented? It is obvious that the condition is not one of the common forms of edema. It is apparently not even the terminal

edema occurring in tuberculous individuals. The two common factors in the problem presented appear to be chronic fibroid tuberculosis and high altitude. This would lead one to suspect that a decreasing oxidation within the cells may be a contributing factor.

The toxemia of the disease, added to the decreased power of oxidation within the cells, results in a changing ionic balance and a change in colloid stability. In addition, a low oxygen tension necessitating increased pulmonary ventilation in the presence of a diminished alveolar surface from diseased tissue or the emphysema of healing may in combination lead to such an intractable condition. As a suggestion, it may be useful to test the effect of high oxygen tensions on such patients. Irrespective of any apparent benefits from such a procedure there is little hope of a permanent recovery, as the body reserves have apparently become physiologically bankrupt.

USE OF OLIVE OIL IN GASTRO-INTESTINAL DISEASE

To the Editor:—A patient of mine, aged 21, who three years ago, because of epigastric discomfort, pyrosis and eructations, was ordered by her doctor to leave meat out of her dietary and to use olive oil freely, has had occasional remissions of trouble in the interval. During the past six weeks, her complaint has been of mild fatigue, eructations of gas with associated sourness, and mild gastric discomfort. There is also a sense of what the patient calls "spasm" in the upper half of the abdomen, occurring after stool. A fractional analysis has not been done. My diagnosis is (1) chronic peptic ulcer and (2) gastric stasis with fermentation, the second condition being due to the oil. The questions I ask are: 1. What is the use of olive oil other than (*a*) as a cholagogue, (*b*) to inhibit the rate of gastric secretion and (*c*) as a "lubricant"? 2. Is olive oil a food? 3. If so, what is its metabolism and its waste product (passed with the feces) in the human being? 4. Does olive oil cause frequent eructations? I advised the patient to diminish her daily quantity of oil and to take fig and bran flakes if costive. Please omit name.

M.D., Canada.

ANSWER.—The evidence presented is insufficient to justify a diagnosis of chronic peptic ulcer or gastric stasis with fermentation, the latter in particular without a gastric analysis.

1. It should be remembered that massive doses of olive oil taken for its cholagogue effect not infrequently result in the passage of masses of fatty acids that the patient may believe are calculi. Certain alleged cures for gallstone sold as "patent medicines" are essentially olive oil and a saline which bring about the passage of soapy concretions that the victim thinks are gallstones.

2. Olive oil is a food, not a lubricant.

3. Olive oil is digested in the gastro-intestinal tract like any other fat. If given in excess, in the presence of a pancreatic disease in which fat digestion may be interfered with, or when the intestinal contents are hurried through with unusual rapidity, fat may appear in the stool. Otherwise no fat will be found in the stool.

4. Ordinarilly not. Eructations may occur in any gastro-intestinal complaint.

INTESTINAL MYIASIS

To the Editor:—I have a patient under observation for the following condition, which apparently has been very resistant to all forms of treatment, and until I received the laboratory report, the exact trouble was not known: She had been treated for years for worms. Her husband brought to my office what appeared to be worms but which the laboratory diagnosed as larvae of the common housefly, and the laboratory workers had to wait until they came out of the pupal stage before the diagnosis could be made. Apparently the patient has an enormous number of these in the intestinal tract and is, no doubt, an incubator for them. Not finding any form of treatment in any of the textbooks on this condition, I would appreciate it if you would outline a treatment that would rid this patient of her complaint.

A. P. KIMBALL, M.D., Yuma, Ariz.

ANSWER.—Myiasis is the term applied to a disease condition resulting from the occurrence of the larvae of flies of different species in the intestinal and urinary tracts. Among the species most generally responsible, according to Hewitt, is Musca domestica, the housefly.

When the larvae are present in the stomach they may cause violent pains and dizziness and are often expelled by vomiting. In the intestine they give rise to abdominal pains and diarrhea, not infrequently accompanied by hemorrhage caused by the larvae perforating the mucous lining of the intestine. Occurrence of the larvae in the urinary tract is more remarkable, but cases have been on record since the seventeenth century.

Hewitt suggests several methods of infestation. All the flies are attracted to decaying animal or vegetable products, excrementous or purulent substances, for the purpose of depositing their eggs. Should these eggs be on food, the eggs or young larvae would be taken into the digestive tract. Intestinal infection may result from the flies, which frequent privies for the purpose of ovipositing, depositing their eggs in the anal region, and the larvae on hatching enter by way of the rectum. Infection of the urinary tract is more difficult to understand, especially in the case of the male. Flies would be attracted to the genital apertures by the various albuminous and other secretions, especially in cases in which the organ is exposed for any length of time.

Treatment does not seem to have much effect, for the larvae leave of their own accord, through the anus, when approaching maturity. The usual vermifuges, such as santonin, pepo, oil of chenopodium or thymol, are of little value, but mild purgatives and high enemas may hasten their departure.

PREGNANCY IN WOMAN OF FORTY-FIVE

To the Editor:—I have a patient, aged 45, who was normally delivered of a living child eighteen years ago, had two therapeutic abortions twelve and six years ago because of acute toxemia of pregnancy, and at present has a delayed menstrual period not long enough for a urine test. To handle the case properly, if there is a pregnancy, I should like to know how frequently a pregnancy occurs at this age under similar circumstances, what its average course is, and the most advisable and also average procedure in delivery. Please omit name.

M.D., California.

ANSWER.—These questions cannot be answered satisfactorily, even in a general way, because not enough data have been supplied and because there is great difference of opinion on the subjects mentioned.

In the first place, the question of pregnancy must be settled. Secondly, if there is a pregnancy, no one can quote statistics as to its frequency under such circumstances. Pregnancy is rare at the age of 45 in healthy women and much more uncommon in women with chronic nephritis. It seems that this woman suffers from a latent chronic nephritis or what some authors call a low reserve kidney. As regards the average course of such a case, one cannot generalize. The pregnancy would in all likelihood aggravate the kidney disease and the kidney disease would more than likely produce a late abortion or abruptio placentae.

As regards the "average procedure" in delivery, only general rules apply. In the presence of threatening eclampsia the uterus should be emptied and, in any event, if the woman should be carried to the point of viability of the child, emptying the uterus ought to be considered.

The questioner is referred to the recent works of Dr. H. J. Stander and Dr. C. H. Peckham, and Dr. E. J. Stieglitz's Arterial Hypertension, chapter on its obstetric aspects.

BRACHIAL PLEXUS NEURALGIA

To the Editor:—I have recently seen a woman, aged 24, who suffered with what appeared to be a brachial plexus neuralgia. Her general health is good and previously she was entirely well except for the neuralgic pain in the arm. She suffered her first attack of this trouble at about 10 years of age following measles. Since that time she has had one or two attacks each year. These have never been severe enough nor persisted long enough to require medical attention. Her recent attack began with an aching pain, which lasted for two or three minutes and originated in the upper part of the arm and extended to include the entire arm and hand. There was an interval of four or five hours without pain. The attacks then recurred with gradually increasing severity and a shortening of the intervals between them until they occurred at intervals of from thirty minutes to one hour, with the pain persisting for from fifteen to twenty minutes. The pain is described as that characteristic of trifacial tic; viz., excruciating, lightning-like pain shooting through the right arm. The pain was so severe that she blistered the hand and lower arm in holding it before an open fire. She was surprised to find that she had produced this burn, stating that the pain was so severe that she had not been able to feel the heat from the fire. There is no radiation of the pain along the long thoracic nerve or the subscapulars. There is no herpes, no selectivity to either the radial, ulnar or median and an absence of pain or soreness during the lucid interval. I have not been able to find a report of such an attack of tic occurring as a brachial plexus neuralgia. I had occasion to ask a neurologist about the condition and he stated that he had not seen or read a report of such a case. I should like to know whether similar cases have been reported, and what treatment might be offered in relieving these attacks should they recur.

ROY E. EMANUEL, M.D., Chickasha, Okla.

ANSWER.—One is left by the correspondent to suppose many things, particularly that careful examination was made and no evidence of organic disease was found. Lightning pains in the arms may be present in several disorders, such as proliferative osteartritis in the cervical region, syringomyelia, cervical pachymeningitis, and intraspinal tumor. In this particular case one might suspect syringomyelia because of the history of burning the hands without knowing it. No malady similar to trigeminal neuralgia, affecting the brachial plexus, has been distinguished.

Council on Medical Education and Hospitals

COMING EXAMINATIONS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOLOGY: *Written.* Examinations will be held in various cities, April 30. *Oral.* Cleveland, June 11-12. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: *Oral* (all candidates), Cleveland, June 12. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh.

AMERICAN BOARD OF OPHTHALMOLOGY: Cleveland, June 11 and Butte, Mont., July 16. *Application must be filed at least 60 days prior to date of examination.* Sec., Dr. William H. Wilder, 122 S. Michigan Blvd., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: Cleveland, June 11. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

ARKANSAS: *Basic Science.* Little Rock, May 7. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Regular.* Little Rock, May 14-15. Sec., Dr. A. S. Buchanan, Prescott. *Homeopathic.* Little Rock, May 8. Sec., Dr. Allison A. Pringle, Eureka Springs. *Eclectic.* Little Rock, May 8. Sec., Dr. L. L. Marshall, 820 W. 14th St., Little Rock.

CALIFORNIA: *Reciprocity.* San Francisco, May 16. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

CONNECTICUT: Basic Science. New Haven, June 9. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven.

DELAWARE: Wilmington, June 12-14. Sec., Medical Council of Delaware, Dr. Harold L. Springer, 1013 Washington St., Wilmington.

FLORIDA: Jacksonville, June 11-12. Sec., Dr. William M. Rowlett, Box 786, Tampa.

IOWA: Iowa City, June 5-7. Dir., Division of Licensure and Registration, Mr. H. W. Grefe, Capitol Bldg., Des Moines.

MARYLAND: *Homeopathic.* Baltimore, June 12-13. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

NATIONAL BOARD OF MEDICAL EXAMINERS: The examinations in Parts I and II will be held at centers in the United States where there are five or more candidates, May 7-9 (limited to a few centers), June 25-27, and Sept. 12-14. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

NEBRASKA: *Basic Science.* Omaha, May 1-2. *Medical.* Omaha, June 8-9. *Application must be filed at least fifteen days prior to date of examinations.* Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEVADA: Carson City, May 7. Sec., Dr. Edward E. Hamer, Carson City.

OHIO: Columbus, June 5-8. Sec., Dr. H. M. Platter, 21 W. Broad St., Columbus.

OKLAHOMA: Oklahoma City, June 6-7. Sec., Dr. J. M. Byrum, Mammoth Bldg., Shawnee.

WYOMING: Cheyenne, June 4. Sec., Dr. W. H. Hassed, Capitol Bldg., Cheyenne.

Book Notices

Thirty-First Annual Report, 1932-1933, of the Imperial Cancer Research Fund. Under the Direction of the Royal College of Physicians of London and the Royal College of Surgeons of England, November, 1933. Paper. Pp. 19. London, 1933.

Studies made by Mr. Crabtree and Dr. Cramer on the action of radium on cancer cells have elicited some interesting facts related to radiosensitivity. Two methods were adopted: 1. Thin slices of tumor tissue were exposed to radium and various inhibitors of metabolism and the amount of respiration and aerobic glycolysis were recorded. 2. Tumor tissues that had been exposed to the inhibiting solutions were transplanted and their behavior was noted. It was established that hydrocyanic acid inhibits respiration specifically but does not inhibit glycolysis. Transplantability and growth are not at all affected even by exposure to a concentration of twentieth molar hydrocyanic acid for one hour at 37 C. Iodo-acetic acid and sodium fluoride were found to have a definitely toxic action on the living cell. After the appropriate concentration from which complete recovery is possible had been established for these various inhibitors of metabolism, the effect of radiation was studied on tumor cells in which either glycolysis or respiration was in abeyance. Other methods of arresting respiration are by the withdrawal of oxygen (anaerobiosis) and by exposure to cold. Experiments were devised in which radium radiation was applied to tumor tissue while either respiratory or aerobic glycolysis was profoundly modified. It was found that exposure to hydrocyanic acid and to low temperature greatly increases the susceptibility to radium. Anaerobiosis produces the opposite effect, greatly increased resistance. Since both hydrocyanic acid and anaerobiosis produce increased glycolysis and the effect produced on radiosensitivity is in opposite directions, it is concluded that the biologic effect of radiation is not produced through an action on the glycolytic mechanism. This is confirmed by the fact that iodo-acetic acid and sodium fluoride which inhibit primary glycolysis do not influence the effect of radiation. These experiments suggest that the lethal action of radiation on living cells is due to its action on the respiratory mechanism. The authors believe that the problem of radiosensitivity of cancer cells is the resultant of a considerable number of largely independent factors. It is also suggested that local conditions of impaired vascularization may set up a degree of anaerobiosis that influences susceptibility to radiation. Dr. Ludford's experiments utilizing vital staining by trypan blue permitted a clear distinction to be made between the tumor cells—carcinoma and sarcoma—that do not segregate the dye and the nonmalignant associated cells that do. Further experiments with other tumors of the mouse and rat have shown that the distinction between normal and malignant cells by these methods is not absolute but is, in part, an individual peculiarity of the strain of tumor employed. Dr. Watson has studied the effects of adding fresh ox or horse liver to the diet on tar carcinogenesis in mice. He found that a greater proportion of the animals develop tar tumors and that they appear earlier than in the control series. The studies discussed in this report are of special interest and the results suggest further avenues of approach in the effort to gain a deeper knowledge of the factors underlying tumor growth. The investigations on radiosensitivity are particularly welcomed because of the lack of understanding of the factors that determine sensitivity and resistance to radiation.

The Nature and Treatment of Amentia: Psychoanalysis and Mental Arrest in Relation to the Science of Intelligence. By L. Pierce Clark, Chief of Advisory Board of Research at Letchworth Village for Feebleminded. Assisted by the Staff of the Psychoanalytic Sanatorium at Rye, N. Y., T. E. Uniker, Ethel L. Rourke, W. K. Cushing and Margaret C. Cairns. Foreword by Ernest Jones, M.D., President of the International Psychoanalytical Association. Cloth. Price, $4.25. Pp. 306. Baltimore: William Wood & Company, 1933.

Special recreational work and carefully developed educational technics have already proved that feebleminded persons can be made to appear more adequate than was formerly considered to be the case. There is no reason why technics, such as psychoanalysis, should not be brought into this field to aid in the adjustment of these classes of patients, and the thesis of Dr. Clark is that the application of the freudian methodology does aid the feebleminded child in making better adjustments to society and assists him in leading a more contented life. There is much discussion of the technics and mechanisms involved in this work, but significant features are those presented in the discussion of eleven illustrative case studies, which take up a large portion of the book. It must be admitted that these cases are interesting and show that the children did make progress. Because the cases were specially selected, there remains in the mind of the reader the impression that now a technic has been found that will prove significant in the handling of feeblemindedness; but because of the same fact that these are specially selected cases some doubt is cast on the usefulness of an unvarying application of the freudian method, although the author does select his cases from among all of the various types of feeblemindedness. This volume can be considered only an interesting preliminary report, and much more work will have to be done before the analytic technic can be proved to have an important place in the field of treatment for feebleminded patients. The bibliography is inadequate and the author is prone to use such archaic terms as "amentia" and "mental arrest," which were long since discarded by the meticulous psychologist.

Mikroskopie und Chemie am Krankenbett. Von Hermann Lenhartz. Fortgeführt von Erich Meyer. Eleventh edition revised by A. V. Domarus and R. Seyderhelm. Paper. Price, 18.60 marks. Pp. 370, with 182 illustrations. Berlin: Julius Springer, 1934.

The high standard of this compact manual of laboratory technic, familiar to every German speaking physician, has been maintained in the present edition by careful revision and incorporation of the most popular newer laboratory methods, such as vital stain for reticulocytes, oxydase reaction, examination of blood in a thick drop according to von Schilling's method, determination of sedimentation rate, and various micromethods. The small volume covers in a concise, comprehensive manner

the field of the routine laboratory technic. The illustrations are instructive and the colored plates beautifully reproduced. Few omissions have been noticed. In the etiology of gas edema, Bacillus perfringens and the septic vibrio have not been mentioned. Only Landsteiner-Moss's classification of blood groups is described, Jansky's being omitted. Haine's sugar test is missing. Among functional liver tests, only the galactose test could be found. No description of the several new methods of examination of gastric contents, such as the alcohol or the histamine test, has been offered. This handy little volume compares favorably with similar manuals in English and can be heartily recommended to all physicians who speak German.

Pathologie und Klinik der Granulosazelltumoren. Von Dr. Walter Schiller, Assistant der II. Universitäts-Frauenklinik (Prof. Dr. Wilh. Weibel) in Wien. Cloth. Price, 16 marks. Pp. 197, with 134 illustrations. Vienna: Wilhelm Maudrich, 1934.

The histologic interpretation, clinical evaluation, definition and description of granulosa cell tumors of the ovary are full of controversies; hence every gynecologist will welcome a critical review of the literature and detailed description of sixteen benign and eight malignant cases, in addition to a report of experiments dealing with production of granulosa cell tumors by means of injections of a hormone combined with application of a carcinogenic agent. On the basis of clinical observations, histologic studies and results of experiments the author discusses the histogenesis of a normal granulosa as well as granulosa cell tumors, arriving at the conclusion that the tumors derive from undifferentiated residues of the mesenchymal nucleus of the ovary. He describes the clinical aspects of such tumors, including the age incidence, importance of ascites, frequency of malignant degeneration, production of hormones by the tumors with resulting hormonic effects such as amenorrhea, menorrhagia, postclimacteric hemorrhages, and feminization or masculinization. The monograph is profusely illustrated and represents the fruit of an exhaustive study of a problem that is not only of theoretical interest but also of great clinical importance.

Clinical Tests of the Function of the Heart. By Gustav Nylin. Acta medica Scandinavica, Supplementum LII. Paper. Pp. 92, with 5 illustrations. Helsingfors: Mercators Tryckeri Aktiebolag, 1933.

This volume consists of a brief review of the literature followed by a report of Nylin's own investigations. Half of the book is made up of a long table of his case material consisting of 143 subjects, some with normal hearts and some with diseased hearts. There is a bibliography of ninety-two references. The author begins by outlining his method of study: For the purpose of studying the effect of graduated work a special staircase was constructed, made in four sections and running in a circle when put together. Every section consisted of six steps. The total height of the staircase was 1 meter, so that every person experimented on had to raise and lower the weight of his body twice alternately during one round of the stairs. Even in severe decompensation cases Nylin found a rate of 88 steps per minute suitable; the number of rounds the patient had to make in such cases was five. Healthy persons and patients with slight decompensation had to perform the work at a rate up to 160 steps per minute; the number of rounds varied from five to ten or twenty, the last mentioned being, however, very considerable and suited only to the quite healthy. A rate of 88 steps per minute means that the patient alternately raised and lowered his own body weight 14.7 meters per minute. In the morning the oxygen consumption of the completely rested subject was determined first, for which purpose a Krogh spirometer was used. Then the oxygen consumption was again determined after a fixed amount of work on the stairs, timed with a metronome. On the conclusion of the work it usually took about fifteen seconds to fit the Krogh spirometer; the registration began immediately and was continued for varying periods, though not less than five minutes after the cessation of work. On all the curves was marked the time during which the oxygen consumption was calculated, beginning exactly at the second minute after the cessation of work, and stopping exactly at the end of the fifth. In several cases the investigation of the oxygen consumption was continued for a further five to fifteen minutes. In determinations of the utilization, the author employed Grollman's acetylene method. The investigations of minute volume during rest and after work covered a smaller material than those carried out for oxygen consumption, as the determinations were very slow, and the method was difficult to master. In a large number of cases, among both the healthy and the sick subjects, simultaneously with the investigations of oxygen consumption both during rest and after the cessation of work, determinations were made of the systolic and diastolic blood pressure and the pulse rate. On the basis of these determinations, Liljestrand-Zander's product was calculated in the first place during rest and in the second after work of fixed intensity in the time periods mentioned. Then the increase of this product was calculated as a percentage of the resting value.

The results were as follows: Among healthy subjects, cases of heart insufficiency during rest, cases of compensated valvular trouble, myocardial degeneration, hypertonia, and some cases of exophthalmic goiter and cardiac neurosis, the oxygen consumption, the minute volume of the heart, ventilation, blood pressure and the pulse rate were investigated during rest and after work on the stairs. The author's conclusions were that: 1. The increase in oxygen consumption as a percentage of the resting value after a fixed amount of work on the stairs varies within fairly narrow limits in healthy individuals and is independent of body weight, provided the latter is within physiologic limits. 2. In cases of decompensated heart disease and cases of decompensated hypertonia, this increase is consistently greater than in the healthy subjects, so that it seems to be a reliable measure of pronounced heart insufficiency, though it is of more doubtful value with borderline cases. At the same time as the insufficiency yields to treatment, a reduction of the oxygen consumption after work often sets in. 3. The increase in ventilation after work is a far less reliable measure of the decompensation than the increase in oxygen consumption. 4. The pulse rate, utilization and standard metabolism are increased in many cases of decompensated heart disease and hypertonia during rest, but, on the other hand, the minute volume, the minute volume per square meter of body surface, and the systolic output, are reduced. Determinations of these functions of the circulation cannot be used, however, as a method of functional heart diagnosis, as the values for healthy subjects and cases of decompensation partly overlap. 5. The systolic output per square meter of body surface in the decompensated cases appears to be considerably reduced, so that its determination is of greater importance than that of the functions mentioned in the fourth conclusion. 6. The utilization, i. e., the oxygen absorption, per liter of blood, after a fixed amount of work, returns more quickly to the resting value in healthy persons than in cases of severe decompensation. 7. The return of the systolic blood pressure and pulse rate to the resting value, after a fixed amount of work, is slower in cases of decompensation than in healthy persons. Owing to the fact that the distribution of the values for healthy persons and cases of decompensation partly overlap, determinations of these functions severally cannot be used as measures of heart insufficiency. 8. The return of the Liljestrand-Zander product is retarded in cases of decompensation.

It seems somewhat doubtful in view both of the paucity of the material and of the results whether this functional test following Nylin's method is of practical value in determining the presence or absence of cardiac insufficiency. By the time any of the tests that have been noted in this volume show clear-cut deviations from the normal there are other simple clinical evidences of cardiac insufficiency. In the borderline cases these tests are not of great value.

Diagnosis and Treatment of Diseases of the Liver and Biliary Tract. By Various Contributors. Methods Employed in the Combined Medical and Surgical Clinic for Diseases of the Biliary Tract, New York Post-Graduate Medical School, Columbia University. Paper. Pp. 54, with illustrations. New York, 1934.

This booklet enumerates in outline form the recognized procedures required for examinations in the medical and surgical clinic for diseases of the biliary tract. An outline of the plan of investigation indicates that complete histories and physical examinations are made and that roentgenologic studies of the gallbladder and if indicated of the gastro-intestinal tract, studies of the urine, blood and gastric contents, the bacteriology,

cytology and crystallography of the bile obtained by drainage, and chemical studies of the blood for cholesterol, urea and sugar are carried out. The charts are comprehensive. Several pages are devoted to the technic of biliary drainage, with special stress laid on the manner of searching for typhoid carriers by the bacteriologic study of the bile. On the page enumerating the microscopic observations, no mention is made of animal parasites. This is probably an oversight. The technics of the methods of chemical study are given in detail and the results discussed briefly. The authors use various diets adapted to a varying symptomatology, such as presence or absence of infection, the state of nutrition, association of liver disease, gastric or intestinal irritability, jaundice, fat indigestion, patency of the cystic duct, tonicity of the gallbladder, presence of calculi, and cholesteremia. Much might be disputed; but as this is an outline of the procedure used by the authors and not offered as a definite contribution at this time, it would be out of place to enter into a discussion at present. The last two sections are devoted in more or less skeleton form to the indications for surgical treatment and the management of disease of the biliary tract in pregnancy. This outline is interesting and complete and would seem to be a usable framework for an excellent book on biliary tract disease.

The Effects of the Economic Depression on Education in Other Countries. By James F. Abel, Chief, Division of Foreign School Systems, Office of Education. Bulletin 1933, No. 14. United States Department of the Interior, Office of Education. Paper. Price 5 cents. Pp. 37. Washington, D. C.: Supt. of Doc., Government Printing Office, 1933.

This is a statistical survey of the effects of the economic crisis on education during the years 1929-1932. On such subjects as school budgets, capital outlays, teachers' salaries, unemployment, attendance and school consolidation, data have been accumulated from official reports. Condensed summaries have been prepared for a number of individual countries. Such a compilation may prove a useful guide for students of educational administration.

Medicolegal

Workmen's Compensation Acts: Duty of Employer to Supply Continuing Medical Care in Case of Permanent Disability.—In the course of his employment, in 1929, Nee fractured his spine. Paralysis from the hips downward followed. Since the accident he has been confined in a hospital, hopelessly bedridden and utterly unable to help himself. He requires special food and services that can be furnished only in a hospital. According to the evidence, no medical, surgical or hospital care can reduce his disability or restore him to a gainful occupation. In 1931, the industrial commission awarded him compensation and directed his employer to pay hospital and medical bills amounting at that time to more than $10,000, and to furnish such medical and hospital services in the future as Nee might require. On appeal, the award was affirmed by the superior court, Cook county, and the employer appealed to the Supreme Court of Illinois.

Nee's employer raised no question as to its liability to pay compensation for permanent total disability, but it asked for an adjustment of the claim for continued payment for medical and hospital services. The workmen's compensation act provides:

> "The employer shall provide the necessary first aid medical and surgical services, and all necessary medical, surgical and hospital services thereafter, limited, however, to that which is reasonably required to cure or relieve from the effects of the injury." *Smith-Hurd's Illinois Revised Statutes, 1931, c. 48, sec. 145 (a).*

Nee's employer contended that this does not require an employer to furnish medical and hospital services indefinitely, but to furnish them only to such an extent as may be reasonably necessary to cure or relieve the injured employee from the effects of the injury. "Cure" and "relieve," the employer argued, have essentially the same meaning, and when it has been determined that disability cannot be cured, reduced or relieved, then the employer cannot be required to continue to provide medical and hospital services. The burden of such further care should fall on society through its publicly or privately endowed institutions.

The Supreme Court, however, was unable to construe the words "cure" and "relieve" as meaning the same thing. A workman who is *cured* is relieved from the effects of his injury, but one who cannot be cured may still need attention to *relieve* him of pain or other injurious effects by his injury. These are the only natural and usual meanings of these words. The workmen's compensation act is a humane law of a remedial nature, and wherever construction is permissible, the act should be liberally construed. It would be nothing short of judicial legislation, in an exceptional case, to impose on the act the limitation contended for by Nee's employer. A reasonable interpretation of the act requires that the employer's liability continue as long as medical and hospital services are needed to relieve the injured employee from the effects of his injury. The award of the commission was accordingly affirmed.—*Newman Co. v. Industrial Commission (Ill.), 187 N. E. 137.*

Workmen's Compensation Acts: Loss of Function of Testicles Compensable.—In the course of his employment, Gleason's clothing caught on a revolving shaft and everything except his shoes and a sleeve of his jacket was torn off. Half the body of his penis and the entire scrotum were pulled off and his testicles left hanging by elongated spermatic cords. He was taken to a hospital, where a physician placed the right testicle in the anterior wall of the abdomen. The left testicle he placed above what remained of the penis, in an artificial sac of grafted skin taken from the inner surface of Gleason's thighs. There was no infection and Gleason left the hospital about seven weeks after the accident. He claimed compensation under the workmen's compensation act and sought to have the award based in part on the rating fixed by the act for the loss of both testicles. He was 29 years old but after the accident experienced no sexual sensations, had no normal desire for sexual intercourse and had no erection. His physician testified that because of the skin grafting he would never be able to have an erection or to have sexual intercourse, and he believed that the testicles would never be "usable." The industrial commission made an award in Gleason's favor, but on appeal the circuit court, Lee County, set aside the award for the loss of the testicles. Gleason thereupon appealed to the Supreme Court of Illinois.

The workmen's compensation act authorizes compensation "for the loss of both testicles, 50 percentum of the average weekly wage during one hundred fifty weeks." *Smith-Hurd Rev. St. 1933, c. 48, sec. 145, par. (e), subd. 16¾.* Gleason's employer contended that this language was not sufficient to authorize compensation for the "loss of use" of testicles, but only for their "loss." On behalf of the employer, it was argued that since the testicles had been successfully grafted into Gleason's body, there had been no "loss" within the meaning of the act. This argument, said the Supreme Court, is without legal weight in Illinois. Incapacity to use need not be tantamount to an actual severance. The loss of a member is complete when its normal use has been taken away. In this case, the testicles were not only lost from their usual and natural resting place and sewed up in separate compartments elsewhere, but they were lost in the more serious sense that they never again could perform their normal function having to do with sexual intercourse and the propagation of offspring. Under any reasonable view, an injury to an employee under the workmen's compensation act which renders his testicles useless for the performance of their normal function is compensable. The Supreme Court accordingly affirmed the award of the commission.—*Northwestern Barb Wire Co. v. Industrial Commission (Ill.), 187 N. E. 468.*

Hospitals: Criteria of Charitable Character.—The city of Palo Alto owned the Palo Alto Hospital. It gave possession of the hospital and its equipment to the Leland Stanford Junior University, which agreed to make an annual statement of the receipts and expenditures of the hospital and after deducting operating expenses and any working fund that might be agreed on, to pay the balance to the city. The university, from the tuition fees of each student, paid a stated amount to a students' guild, to pay the operating expenses of the hospital. A student

entering the hospital paid only a part of the expense of treatment, the balance being paid out of the funds of the guild. The hospital gave no free service to any one. There were no free beds for which the hospital itself bore the expense. When the hospital received a patient who was not able to pay, payment was made by a charitable organization, known as the Palo Alto Hospital Auxiliary.

Mrs. Baker, a patient in the hospital, undertook to turn on an electric lamp. When she touched it, she received an electric shock so severe that she could not release her hand until after a nurse had disconnected the lamp from the electric current. It was later discovered that a part of the insulation surrounding the key which served to turn the light off and on was broken. The accident caused a third degree burn of Mrs. Baker's right hand, necessitating the amputation of her little finger and the removal of some of the little bones of her hand. The shock caused, too, great pain and seriously affected her nervous system. She and her husband sued the hospital and were awarded $10,000 and $1,000, respectively, as damages. From the judgment the hospital appealed to the district court of appeal, first district, division 1.

The hospital contended, among other things, that it was a charitable institution and had exercised due care in the selection of its employees. The district court of appeal, however, was of a different opinion. The hospital was not formed and maintained for charitable purposes. No charity was dispensed by it. On the contrary, it charged rates usually and customarily charged by other hospitals. It made no pretense of receiving patients unable to pay for the service rendered, except when payment was guaranteed by the Palo Alto Hospital Auxiliary, an independent organization. Moreover, in California a corporation organized for public charity might conduct also an enterprise for gain and be liable for the negligence of its employees in that enterprise, even though the profits derived from it were devoted to the general purposes of charity (*Stewart v. California Medical, etc., Ass'n*, 178 Calif. 418, 176 P. 46). The court did not regard the damages awarded as excessive.

The judgments of the court below were affirmed.—*Baker v. Board of Trustees of Leland Stanford Junior University (Calif.), 23 P. (2d) 1071.*

Medical Practice Acts: Revocation of License Not Barred by Statute of Limitations.—The California board of medical examiners revoked Bold's license to practice medicine. In a review of the board's action by the district court of appeal, second district, division 2, Bold contended that the proceedings against him were barred by the statute of limitations. The provisions of the California code of civil procedure relating to the commencement of civil actions, said the court, relate only to actions or civil proceedings in courts, not to hearings before boards. The board of medical examiners is not a "court," even though it exercises power of a judicial nature. The purpose of the medical practice act is to exclude undesirable persons from the medical profession. The staleness of a charge against a person does not necessarily make it reflect less on his character. The determination of the effect of staleness belongs exclusively to the board of medical examiners. No statutory bar is applicable.

Two charges against Bold were pending at the time of the hearing before the board. The board heard evidence tending to show that his license should be revoked. It decided that his license should be revoked on the basis of the evidence offered in support of one of the pending charges, in which it was alleged that he had performed a criminal abortion. It then voted to revoke his license on the basis of a second charge, alleging that he had performed an abortion in another case. The latter case formed the basis of the appeal here under consideration. Bold contended that the revocation in this case was not authorized, because when the board revoked his license on the basis of the first charge it lost jurisdiction and authority over him. The appellate court, however, could see no merit in Bold's contention. The board had jurisdiction over both charges. Its decisions could not be made simultaneously, however, but had to be made successively. The judgment of the superior court, Los Angeles county, affirming the action of the board of medical examiners was affirmed by the appellate court.—*Bold v. Board of Medical Examiners (Calif.), 23 P. (2d) 826.*

Society Proceedings

COMING MEETINGS

American Medical Association, Cleveland, June 11-15. Dr. Olin West, 535 North Dearborn Street, Chicago, Secretary.

American Academy of Pediatrics, Cleveland, June 11-12. Dr. Clifford G. Grulee, 636 Church Street, Evanston, Ill., Secretary.

American Association for the Study of Goiter, Cleveland, June 7-9. Dr. J. R. Yung, 670 Cherry Street, Terre Haute, Ind., Secretary.

American Association for the Study of Neoplastic Diseases, Baltimore, June 21-23. Dr. Eugene R. Whitmore, 2139 Wyoming Avenue, N.W., Washington, D. C., Secretary.

American Association of Genito-Urinary Surgeons, Hot Springs, Va., May 14-16. Dr. Henry L. Sanford, 1621 Euclid Avenue, Cleveland, Secretary.

American Association of Medical Milk Commissions, Cleveland, June 11-12. Dr. Harris Moak, 360 Park Place, Brooklyn, Secretary.

American Association on Mental Deficiency, New York, May 26-29. Dr. Groves B. Smith, Beverly Farms, Godfrey, Ill., Secretary.

American Bronchoscopic Society, Cleveland, June 10. Dr. Louis H. Clerf, 110 South 10th Street, Philadelphia, Acting Secretary.

American Clinical and Climatological Association, Toronto, Canada, May 21-23. Dr. Francis M. Rackemann, 263 Beacon Street, Boston, Secretary.

American Dermatological Association, New York, June 7-9. Dr. William H. Guy, 500 Penn Avenue, Pittsburgh, Secretary.

American Gastro-Enterological Association, Atlantic City, April 30-May 1. Dr. Russell S. Boles, The Rittenhouse Plaza, Philadelphia, Secretary.

American Gynecological Society, White Sulphur Springs, W. Va., May 21-23. Dr. Otto H. Schwarz, 630 South Kingshighway, St. Louis, Secretary.

American Heart Association, Cleveland, June 12. Dr. Irl C. Riggin, 50 West 50th Street, New York, Executive Secretary.

American Laryngological Association, Cleveland, June 7-9. Dr. William V. Mullin, 9204 Euclid Avenue, Cleveland, Secretary.

American Neurological Association, Atlantic City, June 4-6. Dr. Henry Alsop Riley, 117 East 72d Street, New York, Secretary.

American Orthopedic Association, Rochester, Minn., June 6-9. Dr. Ralph K. Ghormley, Mayo Clinic, Rochester, Minn., Secretary.

American Physiotherapy Association, Cleveland, June 13-16. Mrs. Bess Searls, 1430 West 77th Place, Chicago, Secretary.

American Proctologic Society, Cleveland, June 11-12. Dr. Frank G. Runyeon, 1361 Perkiomen Avenue, Reading, Pa., Secretary.

American Psychiatric Association, New York, May 28-June 2. Dr. William C. Sandy, State Education Building, Harrisburg, Pa., Secretary.

American Society for Clinical Investigation, Atlantic City, April 30. Dr. H. L. Blumgart, 330 Brookline Avenue, Boston, Secretary.

American Society of Clinical Pathologists, Cleveland, June 8-11. Dr. A. S. Giordano, 531 North Main Street, South Bend, Ind., Secretary.

American Surgical Association, Toronto, Canada, June 4-6. Dr. Vernon C. David, 59 East Madison Street, Chicago, Secretary.

American Therapeutic Society, Cleveland, June 8-9. Dr. Oscar B. Hunter, 1835 Eye Street, N.W., Washington, D. C., Secretary.

American Urological Association, Atlantic City, May 22-24. Dr. Gilbert J. Thomas, 1009 Nicollet Avenue, Minneapolis, Secretary.

Arizona State Medical Association, Prescott, June 7-9. Dr. D. F. Harbridge, 822 Professional Building, Phoenix, Secretary.

Association for the Study of Internal Secretions, Cleveland, June 11-12. Dr. F. M. Pottenger, Pottenger Sanatorium, Monrovia, Calif., Secretary.

Association of American Physicians, Atlantic City, May 1-2. Dr. James H. Means, Massachusetts General Hospital, Boston, Secretary.

California Medical Association, Riverside, April 30-May 3. Dr. Emma W. Pope, 450 Sutter Street, San Francisco, Secretary.

Connecticut State Medical Society, Bridgeport, May 23-24. Dr. Charles W. Comfort, Jr., 27 Elm Street, New Haven, Secretary.

District of Columbia, Medical Society of the, Washington, May 2. Dr. C. B. Conklin, 1718 M Street, N.W., Washington, Secretary.

Florida Medical Association, Jacksonville, April 30-May 2. Dr. Shaler Richardson, 111 West Adams Street, Jacksonville, Secretary.

Georgia, Medical Association of, Augusta, May 8-11. Dr. Allen H. Bunce, 139 Forrest Avenue, N.E., Atlanta, Secretary.

Illinois State Medical Society, Springfield, May 15-17. Dr. Harold M. Camp, Lahl Building, Monmouth, Secretary.

Iowa State Medical Society, Des Moines, May 9-11. Dr. Robert L. Parker, 3510 Sixth Avenue, Des Moines, Secretary.

Kansas Medical Society, Wichita, May 9-11. Dr. J. F. Hassig, 804 Huron Building, Kansas City, Secretary.

Maine Medical Association, Bangor, May 28-29. Miss Rebekah Gardner, 22 Arsenal Street, Portland, Secretary.

Massachusetts Medical Society, Worcester, June 4-6. Dr. Walter L. Burrage, 182 Walnut Street, Brookline, Secretary.

Medical Library Association, Baltimore, May 21-23. Miss Marjorie J. Darrach, 645 Mullett Street, Detroit, Secretary.

Mississippi State Medical Association, Natchez, May 8-10. Dr. T. M. Dye, McWilliams Building, Clarksdale, Secretary.

Missouri State Medical Association, St. Joseph, May 7-10. Dr. E. J. Goodwin, 634 North Grand Boulevard, St. Louis, Secretary.

National Tuberculosis Association, Cincinnati, May 14-17. Dr. Charles J. Hatfield, Henry Phipps Institute, Philadelphia, Secretary.

Nebraska State Medical Association, Lincoln, May 22-24. Dr. R. B. Adams, Center-McKinley Building, Lincoln, Secretary.

New Hampshire Medical Society, Manchester, May 15-16. Dr. C. R. Metcalf, 5 South State Street, Concord, Secretary.

New Jersey, Medical Society of, Atlantic City, June 5-8. Dr. J. B. Morrison, 66 Milford Avenue, Newark, Secretary.

New York, Medical Society of the State of, Utica, May 14-16. Dr. D. S. Dougherty, 2 East 103d Street, New York, Secretary.

North Carolina, Medical Society of the State of, Pinehurst, April 30-May 2. Dr. L. B. McBrayer, Southern Pines, Secretary.

North Dakota State Medical Association, Fargo, May 28-29. Dr. Albert W. Skelsey, 20½ Broadway, Fargo, Secretary.

Oklahoma State Medical Association, Tulsa, May 21-23. Dr. L. S. Willour, Ainsworth Building, McAlester, Secretary.

Pacific Northwest Medical Association, Salt Lake City, June 21-23. Dr. C. W. Countryman, 407 Riverside Avenue, Spokane, Wash., Secretary.

Rhode Island Medical Society, Providence, June 7. Dr. J. W. Leech, 167 Angell Street, Providence, Secretary.

South Carolina Medical Association, Charleston, May 1-3. Dr. E. A. Hines, Seneca, Secretary.

South Dakota State Medical Association, Mitchell, May 14-16. Dr. John F. D. Cook, Langford, Secretary.
Texas, State Medical Association of, San Antonio, May 14-17. Dr. Holman Taylor, Medical Arts Building, Fort Worth, Secretary.
Utah State Medical Association, Salt Lake City, June 21-23. Dr. Leland R. Cowan, 305 Medical Arts Building, Salt Lake City, Secretary.
Western Branch Society American Urological Association, Los Angeles, April 27-29. Dr. George W. Hartman, 999 Sutter Street, San Francisco, Secretary.
West Virginia State Medical Association, Huntington, May 14-16. Mr. Joe W. Savage, Public Library Building, Charleston, Executive Secretary.

Current Medical Literature

AMERICAN

The Association library lends periodicals to Fellows of the Association and to individual subscribers to THE JOURNAL in continental United States and Canada for a period of three days. Periodicals are available from 1925 to date. Requests for issues of earlier date cannot be filled. Requests should be accompanied by stamps to cover postage (6 cents if one and 12 cents if two periodicals are requested). Periodicals published by the American Medical Association are not available for lending but may be supplied on purchase order. Reprints as a rule are the property of authors and can be obtained for permanent possession only from them.

Titles marked with an asterisk (*) are abstracted below.

Alabama Medical Association Journal, Montgomery

3: 225-264 (Jan.) 1934

Amebic Dysentery: Report of Case with Discussion of Treatment. J. H. Watkins, Montgomery.—p. 225.
Injuries to the Head and Brain. R. E. Semmes, Memphis, Tenn. —p. 231.
Asthma: Personal Observations on Fifty-Four Cases. C. K. Weil, Montgomery.—p. 235.
Acute Appendicitis Complicating Pregnancy and the Puerperium. N. E. Sellers, Anniston.—p. 242.
*Conservative Treatment of Convulsive and Nonconvulsive Toxemia. A. E. Thomas, Montgomery.—p. 245.

Treatment of Convulsive and Nonconvulsive Toxemia.—Thomas institutes treatment immediately if, in spite of the hygienic rules laid down for the patient, the symptoms of nonconvulsive toxemia develop, if the blood pressure begins to rise and if there is a sudden increase in body weight due to water retention and a diminished urinary output with frequency, albuminuria, slightly accelerated pulse, headaches, numbness and tingling of the fingers, lassitude and malaise. The patient is put to bed and must have absolute rest. Mental rest is imperative and is best secured by the proper application of sedatives. Sodium amytal may be given in doses of 3 grains (0.2 Gm.), and may be repeated as often as necessary to produce rest. In order to relieve water retention in the tissues and to lessen the load on the kidneys, intestinal excretion is to be encouraged. A salt-free, nonprotein diet is indicated until the symptoms subside. A diet rich in carbohydrates is essential; this is readily available in the form of fruit juices, cereals, custards, milk and vegetables, with dextrose added as required. The blood pressure curve, intake and output, pulse, body weight and any unusual subjective or objective symptoms that may develop should receive untiring attention. A twenty-four hour specimen of urine should be measured and examined. With improving conditions, the patient may gradually return to the normal diet, containing not too much meat or fluids and little salt. From one to two days each week should be set aside as vegetable days. The patient who has once shown the slightest evidence of toxemia, regardless of how well she responds to treatment, should be seen at frequent intervals and kept under close observation. If the course of the disease is slow but progressive with gradually increasing symptoms, chronic nephritis or low kidney reserve is suggested and treatment is to be intensified if possible.

American Journal of Cancer, New York

20: 1-294 (Jan.) 1934

Malignant Disease of Thyroid Gland: Clinicopathologic Analysis of Fifty-Four Cases of Thyroid Malignancy. L. W. Smith, E. H. Pool and C. T. Olcott, New York.—p. 1.
*Metastatic Tumors of the Heart. E. M. Burke, Buffalo.—p. 33.
Some Effects Produced by Applying Estrin to the Skin of Mice. H. Burrows and N. M. Kennaway, London, England.—p. 48.
Comparison of Action of Some Polycyclic Aromatic Hydrocarbons in Producing Tumors of Connective Tissue. G. Barry and J. W. Cook, London, England.—p. 58.
Trial of Suggested Remedies for Cancer: Note. H. Burrows, London, England.—p. 70.
Study of Spontaneous Tumors of the Mouse by Tissue Culture Method. Margaret Reed Lewis, Washington, D. C., and L. C. Strong, Bar Harbor, Maine.—p. 72.
*Study of Relationship of Internal Secretions to Metabolism of Malignant Tumor Tissue. O. O. Meyer and Claire McTiernan, Boston.—p. 96.
Influence of Various Preparations of Lactic Acid and Sugars on Growth of Transplanted Tumors: II. Mouse Sarcoma 180. I. A. Parfentjev, V. D. Suntzeff and W. K. Devrient, St. Louis.—p. 117.

Metastatic Tumors of the Heart.—In a study of 327 necropsies on patients with known malignant manifestations, Burke found fourteen cases of metastatic involvement of the cardiac muscle. This constitutes approximately 4.3 per cent of routine necropsies made in such cases at the state institute for the study of malignant disease. While this proportion seems somewhat higher than a review of the literature would indicate, it can probably be explained by the fact that this series includes only cases in which malignant disease was definitely the cause of death.

Internal Secretions and Metabolism of Malignant Tumors.—According to Meyer and McTiernan, the effect on the metabolism of transplanted mouse tumors of the bodily administration of various hormones is insignificant save for thyroxine and insulin. In a distinct majority of experiments, thyroxine appreciably inhibits the oxygen consumption of the tumor, both sarcoma 180 and carcinoma 63; simultaneously, thyroxine strikingly stimulates the metabolism of isolated liver tissue. The aerobic and anaerobic glycolysis of sarcoma 180 is not increased after bodily administration of thyroxine. Microscopically, the sarcomas of thyrotoxic mice resemble the tumors of the normal mice. The administration of insulin brings about a decrease in the anaerobic glycolysis of mouse sarcoma 180. Several of the other hormones seem to have a depressing effect on liver metabolism, and that of theelin is most striking. The effects on tumor and liver following the removal of various glands of internal secretion are inconstant. Only thyroidectomy appears to bring about a depression of the metabolism of both, and this is not striking and is hardly constant enough to appear significant. Further experiments after thyroidectomy are necessary. Thyroxine seems to inhibit tumor growth, but no other hormone has any demonstrable effect on the tumor development, nor does removal of the glands of internal secretion prevent the usual rapid growth of the sarcoma.

American Journal of Medical Sciences, Philadelphia

187: 1-148 (Jan.) 1934

Disease of Coronary Arteries with Consideration of Data on Increasing Mortality of Heart Disease. D. Riesman and S. E. Harris, Philadelphia.—p. 1.
Large Q Wave in Lead III of Electrocardiogram. R. France, Baltimore.—p. 16.
*Effect on Electrocardiograms of Patients with Regular Sinus Mechanism of Quinidine Sulphate. C. C. Maher, C. P. Sullivan and C. P. Scheribel, Chicago.—p. 23.
Clinical Significance of Bacillus Coli-Hemolyticus. W. L. Niles and J. C. Torrey, New York.—p. 30.
*Formation of Hematopoietic Substance in Concentrated Human Gastric Juice. P. J. Fouts, O. M. Helmer and L. G. Zerfas, Indianapolis. —p. 36.
Studies on Physiology of Parathyroid Glands: IV. Renal Complications of Hyperparathyroidism. F. Albright, P. C. Baird, O. Cope and Esther Bloomberg, Boston.—p. 49.
Photographic Suspension Stability (Sedimentation Rate) Apparatus: Preliminary Report. H. W. Sulkowitch, Boston.—p. 65.
*Hematopoietic Response of Rat to Injections of Pentnucleotide and Its Relation to Treatment of Agranulocytosis. C. Reich and Eleanor Reich, New York.—p. 71.
Analysis of So-Called Aplastic Anemia. W. P. Thompson, M. N. Richter and Katharine S. Edsall, New York.—p. 77.
Blood Cytology in Untreated and Treated Syphilis. P. D. Rosahn and Louise Pearce, New York.—p. 88.
Involvement of Eighth Nerve in Syphilis, with Especial Reference to Results of Treatment. A. Ciocco and A. Weinstein, Baltimore.—p. 100.
Conjugal Syphilis: Statistical Study. H. B. Decker, Camden, N. J. —p. 111.
Probable Allergic Nature of Cinchophen Poisoning, with Especial Reference to Arthus Phenomenon and with Precautions to Be Followed in Cinchophen Administration. A. J. Quick, New York.—p. 115.
Nevus Flammeus Nuchae: Its Occurrence and Abnormalities. E. F. Corson, Philadelphia.—p. 121.

Quinidine Sulphate Electrocardiograms.—Maher and his associates administered quinidine sulphate to nineteen patients; ten received 30 grains (2 Gm.) and three, 60 grains

(4 Gm.) orally per day, and six received intravenous injections of from 3 to 5 grains (0.2 to 0.3 Gm.), without general toxic effects. The electrocardiograms of the majority of these patients showed changes only in regard to the T waves, within from twenty-four to seventy-two hours if orally administered, and immediately if given intravenously. These changes varied from mild flattening to sharp inversion of the T waves. The duration of the effect varied from three to six days on oral administration and three hours on intravenous administration. Changes in the QRS and PR intervals are presumably effects produced by intoxicating doses. On the basis of their studies with doses of from 30 to 60 grains, administered orally over a period of from five to nineteen days, or intravenous injections of from 3 to 5 grains, it would not appear that the reported observations of changes in the P wave, PR interval or QRS complex were verified. The conclusions of T wave changes were sustained amply. In discussing these discrepancies it is the authors' opinion that changes in the contour of the P waves may normally occur in any series of electrocardiograms taken over a period of time. In another series of experiments of the effects of quinidine sulphate on the fibrillating auricle, the reports of which have not as yet been published, they have found that when intoxication of the cardiac muscle appears with heavy doses, such as intravenous injections of 5 grains every four hours for four doses, or from 10 to 12 grains (0.65 to 0.78 Gm.) in one injection, in some cases there was lengthening of the QRS complex as well as marked notching and slurring and appearance of frequent extrasystoles as well as ventricular tachycardia.

Hematopoietic Substance in Gastric Juice.—To determine whether it was possible to separate the "active principle" in the gastric juice from the known enzymes (pepsin and rennin), Fouts and his associates subjected human gastric juice to ultrafiltration. It was found impossible to separate the enzymes, pepsin and rennin, from the hematopoietic substance in human gastric juice except after concentration of the gastric juice by vacuum distillation. The process of concentration by vacuum distillation or storage in the icebox for two months was necessary before the presence of a substance capable of producing a reticulocyte response when injected into patients having pernicious anemia could be demonstrated. The authors discuss the possible mechanisms involved in this change in the gastric juice.

Pentnucleotide and the Treatment of Agranulocytosis.—The Reichs' experimental data reveal that in the case of the rat injections of pentnucleotide have little effect in stimulating or improving the maturation of the blood cells. The total white count, Schilling and lymphocytic indexes, reticulocyte percentage and bone marrow differential react about the same after injections of physiologic solution of sodium chloride as after pentnucleotide. Regeneration after benzene poisoning occurs just as quickly with injections of physiologic solution of sodium chloride as with pentnucleotide. The authors argue that, if x-rays act through the pentnucleotide mechanism, it seems logical that injections of pentnucleotide would improve the maturation of red cells as well as of polymorphonuclear neutrophils. This has not been the case in their work. The doses of pentnucleotide were large in proportion to the weight of the rats and should have been sufficient to cause the changes expected. The hematopoietic system of the rat is different from that of man, but if the bone marrow of the rat was depressed by benzene just as in the case of man, it ought to be stimulated by the same agents that are supposed to stimulate the human bone marrow. The authors further recognize that other possible variants prevent the deductions of the experiment from being applied unqualifiedly to the treatment of human agranulocytosis. Their observations emphasize the vital importance of adequate controls, may help to throw light on some of the disappointing results obtained in the treatment of agranulocytosis with pentnucleotide, and may also lend support to those who believe that many patients having agranulocytosis recover by themselves and that a large percentage of the beneficial results attributed to the various forms of therapy for this condition may be just coincidental. The practically negative experimental results cast some doubt on the value of pentnucleotide in the treatment of agranulocytosis.

American Journal of Ophthalmology, St. Louis

17: 1-98 (Jan.) 1934

Retinal Detachment: Technical Observations and New Devices for Treatment, with Specially Arranged Diathermy Unit for General Ophthalmic Service. C. B. Walker, Los Angeles.—p. 1.
Preliminary Report on Orbital Tumors. G. Hardy and W. F. Hardy, St. Louis.—p. 18.
Conical Cornea Complicated by Acute Ectasia: Report of Case. G. E. Berner, Philadelphia.—p. 22.
Keratitis Bullosa: Report of Case Cured by X-Ray. W. T. Davis, Washington, D. C.—p. 24.
Testing of Visual Acuity: I. Factors in Sensitive Use of Test for Detection of Errors of Refraction. C. E. Ferree and G. Rand, Baltimore.—p. 29.
Source of Staphylococci on Normal Conjunctiva of Human Eye. G. H. Gowen, Chicago.—p. 36.
The Mechanism of the Cross Cylinder. H. R. Hildreth, St. Louis.—p. 39.
Epithelial Cyst in Posterior Chamber: Clinical History and Microscopic Anatomy of the Enucleated Eye. C. W. Tooker, St. Louis.—p. 41.
Sarcoma of Choroid in a Shrunken Globe Exhibiting Fibrous Formation About the Tumor. B. Chance, Philadelphia.—p. 48.

American Journal of Pathology, Boston

10: 1-144 (Jan.) 1934

*Carcinoma of Tubes and Ovaries Secondary to Carcinoma of Body of the Uterus. J. A. Sampson, Albany, N. Y.—p. 1.
Studies on Mature and Immature Lymphoid Cells of Spleen, Lymph Nodes and Thymus of Normal Rats and Rats Infected with Trypanosoma Brucei. C. H. Hu, Peiping, China.—p. 29.
Studies on Mature and Immature Lymphoid Cells of Peripheral Blood of Normal Rats and Rats Infected with Trypanosoma Brucei. C. H. Hu and K. Y. Ch'in, Peiping, China.—p. 43.
*Heart Valves and Muscle in Experimental Scurvy with Superimposed Infection, with Notes on Similarity of Lesions to Those of Rheumatic Fever. J. F. Rinehart and S. R. Mettier, San Francisco.—p. 61.
Nonlipoid Histiocytosis (Reticulo-Endotheliosis) with Autopsy: Report of Case. N. C. Foot and C. T. Olcott, New York.—p. 81.
Multiple Branchiogenic Acanthoma: Report of Case. R. D. Lillie, Washington, D. C.; O. H. Cox, Port Townsend, Wash., and W. C. Teufel, Seattle.—p. 97.
Benzol Poisoning with Hyperplasia of Bone Marrow. Dorothy H. Andersen, New York.—p. 101.
Friedreich's Ataxia: Clinical and Pathologic Study. A. B. Baker, Minneapolis.—p. 113.
Primary Neurogenic Sarcoma of Bladder in an Infant One Month of Age. D. F. Harvey and R. Tennant, New Haven, Conn.—p. 125.
Thrombosis and Pulmonary Embolism. T. H. Belt, Toronto.—p. 129.

Secondary Carcinoma of Tubes.—Sampson studied fifteen cases of carcinoma of the tubes and ovaries. By continuous extension, carcinoma of the body of the uterus invades pelvic structures. Secondary carcinoma of the tubes and ovaries arises from the continuous permeation of the lymphatic canals and also from cancer emboli. By the continuous extension of carcinoma of the body of the uterus the mucosa is replaced by the growth, and when situated in a uterine horn it frequently extends through the uterine opening of the tube and replaces the mucosa of the uterine portion of the tube. Particles of cancer are broken off from the growing (advancing) portion of the growth in this situation and as emboli migrate into the tube beyond. Superficial carcinomas are found in the mucosa of the tubes, in their fimbriae, and on the ovary and peritoneum of patients having carcinoma of the body of the uterus. They present the same histologic structure as recognized implantation carcinoma of the lining of lymph vessels, and also on the peritoneum from ovarian carcinoma, with evidence that particles of cancer from the primary uterine growth could have reached the site of these metastases through the lumens of the tubes. The author believes that their pathogenesis in many instances is the same; namely, the lodging of the cancer cells on the surface of their host, injury to that surface already present or created by the carcinoma, and the attempted repair of the injury with the continued growth of the carcinoma in this situation. In like manner, particles of uterine carcinoma become implanted in the uterine and cervical mucosa and in wounds of the vagina and of abdominal incisions.

The Heart in Experimental Scurvy with Superimposed Infection.—Rinehart and Mettier studied the effect of scurvy and scurvy combined with infection (beta streptococcus) on the valves of the heart and muscle in the guinea-pig. Infection in animals maintained on an adequate diet usually produces no significant lesions in the valves of the heart. When they occur they are of an exudative rather than proliferative type. In uncomplicated scurvy, definite atrophic and degenerative changes occur in the collagenous stroma of the valves of the heart.

In scurvy with added infection, striking lesions of a combined degenerative and proliferative character develop in the valves with considerable frequency. The experimental endocarditis so produced was similar to that of acute rheumatic fever. Degenerative and proliferative lesions occur in the cardiac muscle and pericardium of the experimental animals subjected to combined scurvy and infection, which are considered similar in type to the Aschoff reaction. Organisms other than the beta streptococcus may, in the presence of scurvy, produce such lesions. Lesions resembling the "fibrinoid degeneration" of Klinge have been seen in various sites in animals subjected to combined scurvy and infection. Klinge considers this type of degeneration the characteristic and initial lesion of rheumatic fever. Evidence indicates that there is some factor other than simple infection that contributes to the development of rheumatic fever. Experimentally, infection alone or scurvy alone will not produce significant lesions; but when scurvy and infection are combined striking lesions are produced, particularly in the valves of the heart. The authors advance the theory that a condition of vitamin C undernutrition may be a necessary background for the development of rheumatic fever; when the insult of infection is combined with the scorbutic state, the pathologic picture of rheumatic fever develops.

American Journal of Psychiatry, Baltimore

13: 717-924 (Jan.) 1934

*Influence of Emotion in Precipitating Convulsions: Preliminary Report. F. Fremont-Smith, Boston.—p. 717.
Respiratory Metabolism of Excised Brain Tissue: I. Respiratory Quotient; Carbohydrate and Lactic Acid Utilization. S. B. Wortis, New York.—p. 725.
Narcolepsies. J. Notkin and S. E. Jelliffe, New York.—p. 733.
Studies in Endocrine Therapy in Epilepsy. C. Stein, Palmer, Mass.—p. 739.
Changes in Concentration of Inorganic Calcium and Phosphorus During Convulsions of Experimental Origin, in Cats, Before and After Thyroparathyroidectomy, With and Without Bromide Therapy. Helen C. Coombs, D. S. Searle and F. H. Pike, New York.—p. 761.
Effect of Intercurrent Chronic Pulmonary Tuberculosis on the Convulsion Threshold in Epilepsy: Study of One Hundred Cases. I. J. Karlsberg, Palmer, Mass.—p. 799.
Amylolytic Activity of the Feces in Epileptics. L. A. Damon, Sonyea, N. Y.—p. 817.
Relation of Premature Birth and Underweight Condition at Birth to Mental Deficiency. A. J. Rosanoff, Los Angeles, and Christine V. Inman-Kane.—p. 829.
Experimental Analysis of Psychopathologic Effects of Intoxicating Drugs. E. Lindemann and W. Malamud, Iowa City.—p. 853.
Histopathologic Findings in Two Cases Clinically Diagnosed Dementia Praecox. A. Ferraro, New York.—p. 883.

Influence of Emotion in Precipitating Convulsions.—To determine how frequently emotion acts as a precipitating factor in convulsions, Fremont-Smith has studied forty-two unselected private patients. All suffered from generalized convulsions with loss of consciousness. In thirty-one a direct relationship has been found between emotion and one or more of the major convulsions. In several instances all or nearly all the attacks have been immediately preceded by strong emotion, usually fear, guilt or frustration. That such emotion has causal relation to the convulsions is indicated by the fact that in eight cases major or minor attacks have been precipitated under observation by a discussion of the emotional difficulty. In three cases attacks apparently could be precipitated by the physician at will by such discussion. Psychotherapy has been of definite value in several of these cases, not only by helping the patients to a better adjustment of their major conflicts but more specifically by bringing back to consciousness the suppressed emotion so that they may see clearly the relationship of the emotion to the attack. The theory that stimulation of the sympathetic nervous system by emotion plays an important part is supported by the fact that convulsions are occasionally precipitated by pain and by cold. Emotion, pain and cold are well known stimulators of the sympathetic nervous system. Moreover, the onset of acute infections frequently precipitates convulsions in predisposed persons. Here again the sympathetic nervous system is strongly stimulated. Whether the stimulation of the sympathetic nervous system precipitates the convulsion by cerebral vasoconstriction or by some other mechanism is not known.

American Journal of Public Health, New York

24: 1-100 (Jan.) 1934

Permanent Value of Major Walter Reed's Work on Yellow Fever. F. F. Russell, New York.—p. 1.
X-Ray Mass Procedure Applicable for the Discovery of Early Tuberculosis in Industrial Groups. Margaret Witter Barnard, New York.—p. 8.
How Can Public Health Nursing Fit into a Budget? Alma C. Haupt, New York.—p. 17.
Precipitated Toxoid as an Immunizing Agent Against Diphtheria. J. N. Baker and D. G. Gill, Montgomery, Ala.—p. 22.
Recent Advances in Chemical Treatment of Sewage. F. W. Mohlman, Chicago.—p. 25.
Erysipeloid Condition Among Workers in a Bone Button Factory Due to Bacillus of Swine Erysipelas. G. F. McGinnes and F. Spindle, Richmond, Va.—p. 32.
Arsenic in Tobacco Smoke. C. R. Gross and O. A. Nelson, Washington, D. C.—p. 36.
Responsibility for the Health Program. C. F. Wilinsky, Boston.—p. 43.
Rapid and Accurate Semiautomatic Delivery Pipet. M. W. Jennison, Cambridge, Mass.—p. 59.
Standards. Anna W. Williams, New York.—p. 60.

Am. J. Roentgenol. & Rad. Therapy, Springfield, Ill.

31: 1-144 (Jan.) 1934

Roentgenologic Diagnosis of Intracardiac Calcifications. P. A. Bishop and H. Roesler, Philadelphia.—p. 1.
Pulmonary Tuberculosis in Childhood. R. G. Allison and J. P. Medelman, Minneapolis.—p. 16.
Deformation of Sella Turcica in Tumors of Middle Cranial Fossa. K. Kornblum, Philadelphia.—p. 23.
Demonstration of Spontaneous Internal Biliary Fistula by Roentgen Examination: Report of Case. T. N. Sickels and C. L. Hudson, Cleveland.—p. 31.
Roentgen Visualization of Placenta. W. Snow and C. B. Powell, New York.—p. 37.
Roentgenologic Examination of Chest in Lateral Decubitus. S. Brown, Cincinnati.—p. 41.
Roentgen Examination Repeated After Thirty Years: Case Report of a Shell-Shattered Bone with Roentgenograms Made in 1899 and 1929. A. H. Heald, San Francisco.—p. 44.
Roentgen Irradiation in Treatment of Mammary Carcinoma. U. V. Portmann, Cleveland.—p. 46.
Irradiation in Treatment of Fibromyoma of the Uterus. G. E. Pfahler and J. H. Vastine, Philadelphia.—p. 51.
Some Problems in Radiation Therapy of Carcinoma of the Cervix. W. P. Healy, New York.—p. 60.
Direct Roentgen Irradiation of Intracavitary Neoplasms. W. R. Stecher and T. P. Loughery, Philadelphia.—p. 64.
Determination of Dosage for Long Radium or Radon Needles. Edith H. Quimby, New York.—p. 74.

American Journal of Tropical Medicine, Baltimore

14: 1-92 (Jan.) 1934

Atypical Yaws. P. W. Wilson, Panama.—p. 1.
Notes on Intestinal Flora in the Tropics. E. O. Jordan and Josephine McBroom, Chicago.—p. 27.
*"Red Back" Spider Bite and Magnesium Sulphate Treatment: Clinical Study of Four Cases. C. DeAsis, Manila, P. I.—p. 33.
Quinine and Plasmochin Therapy in Infections with Plasmodium Circumflexum. R. D. Manwell, Syracuse, N. Y.—p. 45.
Nutritional Studies of Foodstuffs Used in Puerto Rican Dietary: IV. Extract of Annatto Seed, Biax Orellana: Its Preparation and Physiologic Properties. D. H. Cook and J. H. Axtmayer, San Juan, P. R.—p. 61.

Red Back Spider Bite and Magnesium Sulphate Treatment.—DeAsis points out that the clinical manifestations resulting from the bite of Latrodectus hasseltii, or the red back spider, are elevated blood pressure; slow, often weak, pulse; rapid, often labored, respiration; profuse perspiration; general weakness and numbness; muscle pains, and paralysis of the lower limbs. The poison may prove fatal. It seems to have a special predilection for the peripheral nerves and nerve endings. The central nervous system seems to be only slightly affected, if at all. The poison travels by way of the lymph canals and is vasoconstrictor in action. A 25 per cent solution of magnesium sulphate, if administered intravenously, is efficacious for the bite of the red back spider. Magnesium sulphate, administered intravenously, is worthy of trial for the bite of Latrodectus mactans (black widow), since the symptoms produced by this spider and those produced by the red back spider are in many respects similar, if not identical. The black widow spider is common in parts of the United States, South America and Hawaii.

Annals of Internal Medicine, Lancaster, Pa.

7: 799-938 (Jan.) 1934

Thrombo-Angiitis Obliterans of Patients with Diabetes. B. T. Horton and F. N. Allan, Rochester, Minn.—p. 799.
Human Constitution: Study of Correlations Between Physical Aspects of the Body and Susceptibility to Certain Diseases. W. Freeman, Washington, D. C.—p. 805.
*Paroxysmal Ventricular Tachycardia: Etiologic Study, with Especial Reference to the Type. C. J. Lundy and L. L. McLellan, Chicago. —p. 812.
Fatal Tularemia: Review of Autopsied Cases with Report of Fatal Case. L. P. Gundry and C. G. Warner, Baltimore.—p. 837.
Fragilitas Ossium in Five Generations. H. Joachim and M. G. Wasch, Brooklyn.—p. 853.
Justification of Diagnosis of Chronic Nervous Exhaustion. J. W. Macy and E. V. Allen, Rochester, Minn.—p. 861.
*Irradiation Treatment of Hyperthyroidism. G. E. Pfahler, Philadelphia.—p. 868.
Cause of Death of Patients with Organic Heart Disease Subjected to Surgical Operation. W. K. Purks, Boston.—p. 885.
Myeloid Insufficiency. R. Gottlieb, Montreal.—p. 895.
Importance of Bronchoscopy in Bronchiectasis. H. P. Marvin, Honolulu, Hawaii.—p. 903.

Paroxysmal Ventricular Tachycardia. — Lundy and McLellan agree that the basic mechanism underlying this arrhythmia (paroxysmal ventricular tachycardia) is laid down by disease of the ventricular musculature. Evidence is advanced which tends to show a relationship of different kinds of heart disease to different types of this arrhythmia. The mechanism involved in determining the type of this arrhythmia is considered to be heart disease which involves one ventricle more than the other, or a region of one ventricle more than the remainder of the same ventricle, and thereby influences the type according to the ventricle, or its part which has the greater involvement. The two types (right and left) may arise from the same ventricle (the left) in different locations. Changed cardiodynamic balance between the two ventricles may be a factor in determining the type by exerting more wear on one ventricle. The basic causes of this arrhythmia are listed and are related to the types as follows: 1. Arteriosclerotic: hypertensive and syphilitic heart diseases are associated in the highest percentage of instances with the left ventricular type. 2. In coronary thrombosis the type is influenced by the location of the infarct. 3. Pulmonary disease, especially pneumonia, was of higher incidence in the right ventricular type. 4. The effect of valvular disease could not be determined. 5. Age exerted an influence. 6. The stage of heart disease was associated in a definite manner. 7. Men develop this arrhythmia twice as often as women. 8. Undetermined heart disease was found in 32 per cent of the reported cases and had a greater relationship to the right ventricular type. 9. No demonstrable heart disease was present in 14 per cent of the cases, most commonly in the right ventricular type. The exciting causes of this arrhythmia are listed and are related to excess digitalis administration, coronary thrombosis, exertion, decompensation, auricular fibrillation, flutter, and nervous and emotional factors. Paroxysmal ventricular tachycardia is seen most frequently in the fourth and fifth decades. The prognosis is utterly grave in the alternating bidirectional type and only relatively less so in the left ventricular, idioventricular and right ventricular in the order named. In the absence of demonstrable heart disease the prognosis is best in the right ventricular type. Death occurred during the period of observation in 47 per cent of the ninety-six patients whose histories were studied.

Radiation Treatment of Hyperthyroidism. — Pfahler believes that radiation is indicated in all cases of hyperthyroidism in which the patient is not in crisis or is not suffering from definite pressure symptoms. He recommends operation in all simple or nontoxic goiters unless there is some contraindication, in which case a moderate amount of radiation may be used. At times good results are obtained even with large goiters of this type. After using radiation therapy in 533 cases of goiter the author states that irradiation with either x-rays or radium may be accepted as a useful method of treatment of hyperthyroidism, since the end-results are approximately equal to those obtained by surgery. The fear of operation or delays preceding operation are likely to lead to cardiac impairment. This delay can be eliminated by the use of radiation therapy, which does not involve pain, shock or great inconvenience. Associated medical care and general directions for the conservation of energy are essential. The author employs x-rays, using 130 kilovolts, 5 milliamperes, at from 25 to 30 cm. distance, with the equivalent of 6 mm. of aluminum filter. The cervical region is divided into four fields, approximately 5 by 15 cm. in size. Two of these are anterior and two are posterolateral. The lower border extends down over the thymic region. The larynx is protected with lead. The rays are directed medially and downward, so that a crossfiring effect is obtained in the region of the thyroid. The four areas constitute one series and they are usually given in one day, this series being repeated in three weeks and then in four weeks, the interval being increased according to the improvement obtained. In simple or colloid goiters, from 30 or 40 per cent skin erythema doses may be given through the four fields without danger of producing hypothyroidism. These several small doses will often be sufficient to show a definite decrease in size. In adenomas, localized doses are usually employed, the adenoma being crossfired through two portals. In the mildly toxic cases an initial 50 per cent skin erythema dose may be given through each of four portals. This is repeated in three weeks and then the amount is decreased and the interval is increased. In the severer cases it is better to begin with smaller doses, not exceeding 40 per cent of the skin erythema dose at the first series. This may be increased at subsequent series. More than six series are rarely necessary. The author employs roentgen radiation as a routine procedure. Of his 533 patients, 87.9 per cent were either cured or markedly improved.

Archives of Neurology and Psychiatry, Chicago

31: 1-220 (Jan.) 1934

Study of Aphasia: The Charles K. Mills Memorial Lecture. T. H. Weisenburg, Philadelphia.—p. 1.
Analysis of Sensation in Terms of the Nerve Impulse. P. Heinbecker, G. H. Bishop and J. O'Leary, St. Louis.—p. 34.
Rôle of Hypothalamus in Regulation of Blood Pressure: Experimental Studies, with Observations on Respiration. L. Leiter and R. R. Grinker, Chicago.—p. 54.
*Comparison of Viscosity of Muscles in Catatonic and Parkinsonian Rigidity. I. Finkelman, Elgin, Ill.—p. 87.
Nature and Origin of Some Tumors of the Cerebellum: Medulloblastoma. L. Stevenson and F. Echlin, New York.—p. 93.
*Cerebellum and Red Nucleus: Preliminary Report on a New Method of Physiologic Investigation. A. T. Mussen, Baltimore.—p. 110.
*Dissociation of Homologous Muscle Function in Stuttering. L. E. Travis, Iowa City.—p. 127.

Viscosity of Muscles in Catatonic and Parkinsonian Rigidity.—Finkelman states that the muscles of patients suffering from catatonic dementia praecox possess a high degree of elasticity and but little internal friction (viscosity). Catatonic rigidity differs in this respect from the rigidity of chronic encephalitis. Pollock and Davis cite the fact that the muscles of patients suffering from parkinsonism possess both high internal resistance of so-called viscosity and a large viscous-elastic flow. The difference between the muscle tonus curves of chronic encephalitis and catatonia is evidence that the muscle rigidity in these two conditions is not due to physiologic interruption at the same levels.

Method of Investigation of Cerebellum and Red Nucleus.—Mussen presents a method with which it is possible to see the reactions that are produced in a normal animal, the success of which depends on the correct insertion and fixation of a bipolar electrode into the region to be examined. The electrode is composed of two iridioplatinum wires fastened to terminals in a vulcanite base and insulated in glass tubes. The base fits into a metal cup, which is screwed into the bone. The cup directs the electrode while it is being inserted, and by means of a bayonet joint attachment holds it firmly. A cylinder with a flange screws over this to keep the tissues from the electrode, and about this the skin and muscles can be closed firmly. Finally a cap is screwed over the cup to protect the terminals. The size of the electrode is 1.5 mm. in diameter, the length varying according to the depth from the surface of the bone of the structure to be investigated. The trephine is 5 mm. in diameter. The brain is not exposed, only the dura being punctured. The animal is anesthetized and the head fixed in the stereotaxic instrument. Measurements of the head are taken, the indicator is adjusted and the position of the structure to be examined is marked. The skull is then trephined and the cup of the electrode unit is screwed into the bone. The bipolar electrode is next inserted; the flange is screwed on and then the cap. The skin and muscle are closed

tightly about the unit, and the field of operation is bandaged. On the following day, when the animal has completely recovered from the effects of the operation, the bandages are removed, the animal is entirely unrestrained and the success of the examination depends on its cooperation. By gentle treatment the ordinary cat will respond normally by purring. The presence of the electrodes in the skull does not cause any pain or uneasiness. With the animal in a friendly mood it is put through a number of simple tests. The gait and righting reflexes are observed, and also its ability to jump from a table and walk backward on the hind legs when it is supported by the shoulders. The cat frequently purrs contentedly. The next event consists of attaching the plug from the faradic battery and testing the reactions. The author's report deals with the results obtained from the red nucleus, the anterior region of the thalamus and the cerebellum. The strength of the current is indicated by the sensation produced by the points of the electrode when applied to the tip of the tongue. With the secondary coil at 17 cm. a slight tingling is felt; at 13 cm., the sensation is painful; contraction begins at 12 cm. and is marked at 8 cm.

Stuttering.—Travis recorded action currents simultaneously from the two masseter muscles during stuttering and during free speech of both the stutterer and the normal speaker. Twenty-four adult stutterers and an equal number of normal speakers served as subjects. In general, during normal speech the action currents from the two masseter muscles were identical, while during stuttering those from one masseter muscle were strikingly different from those of the other. These observations indicated a unified control by the central nervous system of the two sides of the speech mechanism during normal speech and a lack of such control during stuttering.

Archives of Otolaryngology, Chicago

19: 1-156 (Jan.) 1934

Inflammatory Tumors of the Bronchi: Experimental and Pathologic Consideration. A. Peroni, Milan, Italy.—p. 1.
Importance of Roentgenologic Examination of the Sinuses in Chronic Arthritis, with Especial Reference to Cases in Which the Sinuses Are a Silent Focus of Infection. R. G. Snyder, S. Fineman and C. Traeger, New York.—p. 23.
*New Intranasal Operation on Ethmoid Sinus. L. P. Monson, San Francisco.—p. 40.
Influence of "Excitement" on Duration of Postrotational Nystagmus. O. H. Mowrer, Evanston, Ill.—p. 46.
*Effects of Drugs on Ciliary Activity of Mucosa of Upper Respiratory Tract. D. M. Lierle and P. M. Moore, Iowa City.—p. 55.

Intranasal Operation on Ethmoid Sinus.—Monson describes a new method for the surgical care of the diseased ethmoid sinus. The patient is given a preliminary dose of sodium ethyl barbiturate (from 3 to 4½ grains [0.2 to 0.25 Gm.]) thirty minutes before being sent to the operating room. The mucous membranes are shrunk with tightly wound cotton on the end of wire applicators which have been dipped into a solution of equal parts of 20 per cent cocaine and 1:1,000 epinephrine hydrochloride. In most cases, a preliminary submucous resection is advisable to obtain more room and provide a better view for the ethmoid dissection. If polyps are present, they must be removed at this time; then a linear incision is made along the anterior half of the lower border of the middle turbinate, and a submucous resection of this structure is performed with a Freer septal elevator. This mucous membrane and the superior turbinate are carefully preserved. The remainder of the middle turbinate is then amputated throughout its length with a pair of curved nasal scissors. The Bulla cells are next broken into by an ethmoid forceps and the dissection is carried backward by successive bites until the anterior wall of the sphenoid sinus is reached. The remainder of the dissection of the ethmoid sinus is then continued by working carefully upward until the solid bone separating the nose from the anterior fossa is reached and cleared of bony partitions and sinus mucous membrane. Likewise, all the partitions are broken down laterally until the lamina papyracea is reached and cleared throughout its length. The agger cells are removed by means of a Pratt ethmoid curet. Halle's method of turning down the flap of mucous membrane in the agger region and chiseling away the cells should be used when there is considerable hypertrophy of the agger cells and the uncinate process. Loose spicules of bone and débris are carefully removed by the use of nasal forceps. A nasal forceps is placed between the septum and the superior turbinate, and the latter is fractured laterally. Iodoform gauze or gauze containing compound tincture of benzoin is placed loosely in the space between the septum and the medial wall of the ethmoid capsule, in order to hold the latter in place. This is removed in twenty-four hours. The postoperative care consists in the use of mild antiseptic mentholated oily drops after the removal of the gauze. Care must be taken that synechiae are not allowed to form between the septum and the mucous membrane of the medial wall of the ethmoid capsule. These structures soon become adherent to the upper and lateral walls of the nose, providing most of that region with a normal mucous membrane covering.

Effects of Drugs on Ciliary Activity of Upper Respiratory Tract.—Lierle and Moore determined the effects of certain drugs on the ciliary activity of strips of tissue mounted in a special microscope chamber and the effects of a larger number of drugs on the ciliary activity of the unbroken mucosa of the turbinates of freshly killed guinea-pigs. They observed that tap and distilled water when applied to the mucosa of the upper respiratory tract cause slowing of the ciliary beat. A 3 per cent solution of ephedrine hydrochloride is not detrimental to ciliary activity but at times increases it slightly. A 5 per cent solution of cocaine hydrochloride is not detrimental to ciliary activity, but 10 and 20 per cent solutions produce definite slowing, with good recovery. Mild silver protein in concentrations of 5, 10 and 20 per cent produces an initial speeding of ciliary activity. This is followed by a slowing, which may be due to the water solvent rather than to the drug. A 0.5 per cent solution of eucalyptol has no deleterious effect on ciliary activity. A 0.5 per cent menthol and, to a greater degree, 1 per cent menthol have a mildly depressing effect on ciliary activity. Thymol in 1 and 0.5 per cent concentrations and 1 per cent eucalyptol, in the order named, are definitely detrimental to ciliary activity. A 1:1,000 solution of epinephrine hydrochloride, 2 per cent zinc sulphate and 2 per cent mercurochrome, in the order named, are definitely detrimental to ciliary activity. Silver nitrate in a 0.5 per cent concentration is immediately and fatally detrimental to ciliary activity. In no instance was it possible to start the cilia beating again after its application.

Archives of Surgery, Chicago

28: 1-222 (Jan.) 1934

*Teratoma Testis: Fifteen Cases Studied Microscopically and Biologically. C. W. Stelle, Brooklyn.—p. 1.
Experimental Lumbar Sympathectomy: I. Effects on Vascular Tree, Reactive Hyperemia and Temperature of Skin of Extremities. P. E. McMaster and N. W. Roome, Chicago.—p. 12.
*Tumors of Sympathetic Nervous System: Neuroblastoma, Paraganglioma, Ganglioneuroma. D. Lewis and C. F. Geschickter, Baltimore.—p. 16.
Congenital Cartilaginous Rests in the Neck. W. B. Matthews, Chicago.—p. 59.
*Ewing's Tumor (Primary Intracortical and Subperiosteal Lymphangio-Endothelioma): Report of Case. D. A. De Santo, New York.—p. 66.
Osteomyelitis of the Ilium. C. E. Badgley, Detroit.—p. 83.
Pancreatic Tissue in the Wall of the Stomach. E. S. J. King and P. MacCallum, Melbourne, Australia.—p. 125.
Experimental Occlusion of the Pulmonary Artery: Anatomic Study. C. F. Horine and C. G. Warner, Baltimore.—p. 139.
Id.: Pathologic Physiology. C. F. Horine and C. G. Warner, Baltimore.—p. 150.
Return of Gastric Acidity After Subtotal Gastrectomy and Double Vagotomy. P. F. Shapiro and B. N. Berg, New York.—p. 160.
Absorption of Urea from the Bladder. F. A. Fender, Boston.—p. 180.
*Treatment of Infected Wounds of the Brain with Bacterial Filtrates. J. R. B. Branch, A. A. Lempert and R. S. Lyman, Shanghai, China.—p. 189.
A Review of Urologic Surgery. A. J. Scholl, Los Angeles; E. S. Judd, Rochester, Minn.; L. D. Keyser, Roanoke, Va.; J. Verbrugge, Antwerp, Belgium; A. A. Kutzmann, Los Angeles; A. B. Hepler, Seattle, and R. Gutierrez, New York.—p. 199.

Teratoma of the Testicle.—After a study of fifteen cases of malignant tumor of the testicle and a review of the literature, Stelle is of the opinion that practically all malignant testicular growths are either embryonal carcinomas or embryonal adenocarcinomas of teratomatous origin. No other type of malignant disease of the testicle has been seen at the United States Naval Hospital since June 1930. That another type does occur has been pointed out by Stevens and Ewing and by Bell, who described an adult teratoma. In the cases in which either the original tumor or active metastases were present, prolan A could be detected in the urine biologically, by means

of the method of Aschheim and Zondek. The author gives the diagnosis, differential diagnosis and treatment of teratoma of the testicle and emphasizes the importance of making a quantitative test for prolan A in all cases that show a negative qualitative reaction. Only fifteen cases of teratoma of the testicle occurred in 14,381 general admissions to the hospital in a period of twenty-eight months. During the same period there were approximately 620 cases of cancer, in 0.024 per cent of which the growth was a teratoma. Teratoma of the testicle is relatively radiosensitive, and treatment by external radiation and by surgical intervention produces results varying from complete cures to palliative effects, assuring the patient months or years of life comparatively free from disease.

Tumors of Sympathetic Nervous System.—The three types of tumors (neuroblastoma, paraganglioma and ganglioneuroma) that Lewis and Geschickter discuss develop from cells that wander out from the neural crest during embryonic life. The undifferentiated cell may give rise to the neuroblastoma, and as differentiation proceeds the more adult types of paraganglioma and ganglioneuroma may develop. The occurrence of all these types of tissue in the same tumor indicates a common origin, different degrees of differentiation accounting for the occurrence of the more adult type of tissue. Recently Joergensen has reported a case of hypertension associated with a retroperitoneal ganglioneuroma. Softening in the brain and spinal cord was also noted. In discussing this case he stated that "paraganglioma has been found associated with hypertension without other discoverable etiologic factors. Some paragangliomas are composed of epinephrine-bearing tissue, while ganglioneuromas do not contain such elements." One may conclude, therefore, that "in spite of the origin of these two tumors from the common, primitive type of cell, when hypertension is associated with ganglioneuroma it is merely incidental. It is believed that the hypertension in this case can best be explained on the basis of the renal and generalized vascular changes." No other ganglioneuromas have been reported in which hypertension was a part of the clinical picture.

Ewing's Tumor (Primary Intracortical and Subperiosteal Lymphangio-Endothelioma).—De Santo reports a case of primary intracortical and subperiosteal lymphangioendothelioma, so designated because the tumor could be traced to the perivascular lymphatics of the haversian canals and to those beneath the periosteum, and because the tumor cells secreted lymph. The clinical course and the gross and microscopic pathologic picture of this tumor satisfied every criterion of so-called Ewing's tumor. The conception that Ewing's tumor is a primary osteolytic tumor of the medullary cavity is erroneous. Probably in every true case Ewing's tumor is a lymphangio-endothelioma, originating in the lymphatic endothelium of the haversian canals and in that beneath the periosteum. Involvement of the medullary cavity, while prominent, is probably secondary. This concept is in harmony with anatomic knowledge of the lymphatics of the bones, for lymphatics have never been demonstrated in the bone marrow, whereas perivascular lymphatics in the cortex and beneath the periosteum are well known. Even should the existence of lymphatic spaces in the bone marrow be demonstrated at a future date, the validity of the concept would not be destroyed, since medullary involvement might readily occur by transformation of normal lymph endothelium into a neoplasm.

Treatment of Infected Brain Wounds with Bacterial Filtrates.—Branch and his associates give the results they obtained in treating with bacterial filtrates eight patients with open infected wounds of the head involving the brain. Two patients with severely infected wounds on the surface of the brain showed marked improvement within four days following frequent applications of a polyvalent streptococcus-staphylococcus filtrate to the dressings. Prior to treatment with the filtrate they had shown no improvement with irrigation and dressings with surgical solution of chlorinated soda. The authors stress the points that appear to be requisite for success with this type of treatment: 1. Exposure must be complete, so that the whole infected surface is brought in contact with the dressings. 2. The dressings should be moistened with the filtrate at frequent intervals. 3. The infection must be focal and limited to the surface of the wound. Theoretically, this therapy should work with rapidity when the proper filtrate is brought in good contact with bacterial growth in sufficient concentration to cause lysis of the organsims; practically, the results seem to become apparent within about four days or less in cases with surface infection of thoroughly exposed wounds when the dressings are repeatedly moistened with the proper filtrate. Failure to obtain improvement within four days may be taken as an indication of improper contact or of insufficient concentration; that is, of a poorly matched filtrate, inadequate exposure of the wound, a deep or disseminated infection or some other clinical complication.

Arkansas Medical Society Journal, Fort Smith

30: 163-186 (Jan.) 1934

The Irritable Colon: Clinically. S. J. Wolfermann, Fort Smith.—p. 163.
Id.: A Result of Vitamin Deficiency. J. S. Levy, Little Rock.—p. 167.
Relationship Between Public Health and the Practicing Physician. F. O. Mahony, El Dorado.—p. 173.

California and Western Medicine, San Francisco

40: 1-72 (Jan.) 1934

Transurethral Prostatic Resection: General Estimate and a Special Study of Twenty Physician-Patients. G. J. Thompson, Rochester, Minn.—p. 1.
Amebiasis: Clinical Summary. A. C. Reed, San Francisco.—p. 6.
Nonmalignant Lesions of Colon: Their Roentgenologic Diagnosis. R. G. Taylor, Los Angeles.—p. 11.
Insulin Fattening in Ambulatory Patient. H. Clare Shepardson, San Francisco.—p. 14.
Chronic Carbon Monoxide Poisoning: Present-Day Hazard. P. Michael, Oakland.—p. 19.
*Perineal Repair: New Method. H. S. Fist, Los Angeles.—p. 23.
Surgery in Treatment of Pulmonary Tuberculosis. A. L. Brown and S. R. Truman, San Francisco.—p. 25.
Local Treatment of Eczema in Infancy and Childhood. H. E. Miller, San Francisco.—p. 33.
*Fractures at Lower End of Radius: Rolling Pin Method for Their Reduction. W. A. Clark, Pasadena.—p. 35.
Nasal Sinuses: Present Status of Their Treatment. A. B. Wessels, San Diego.—p. 38.

Perineal Repair Following Labor.—Fist devised a simple technic that brings perineal muscle and fascia together in front of the rectum by means of interrupted, buried, submucous, mattress, catgut sutures. Incision of the mucosa is not necessary. This procedure is especially advisable when assistance is scarce and sterilization uncertain. With the patient in the dorsal position and under anesthesia, the vulva and vagina are cleansed. A gauze pack is placed in the vagina to keep the field clear of blood. Perineal sutures may be inserted while waiting for separation of the placenta but should not be tied before the uterus is emptied. The first suture is placed high in the vagina to catch the high levator fibers, and each succeeding suture is placed a little lower. For perineal repair the right vulvar tissues are retracted and the needle is inserted on the left side of the vagina, its point swept well laterally and posteriorly toward the spine of the ischium so as to secure a good wide bite of the left levator ani fibers; then, avoiding the rectum, one brings the needle medially and finally anteriorly out through the mucosa. The needle is reinserted at the hole made by its exit. The point is kept just under the mucosa and brought across to the right side of the vagina and out, and the needle is reinserted at the point of its exit and directed laterally and posteriorly, then medially and anteriorly, to encircle the right levator fibers, and again brought out through the mucosa. At its last point of exit the needle is reinserted, kept just under the mucosa and brought back across the vagina to the first point of insertion and out. The suture ends have now been brought together. Holding them taut with a hemostat, to keep the levator fibers together, simplifies the insertion of the next suture. Before the sutures are tied, the perineum is relaxed by removing the vaginal pack and retractor and further extending the thighs. A finger is inserted into the rectum to feel for sutures and remove any that have penetrated. The sutures are tied from above downward, snugly enough to coapt muscle and fascia, but should not be pulled tight. The levator fibers of both sides are thus brought together between the rectum and vagina. The suture ends are cut at least one-fourth inch from the knot. After the repair has been completed, the perineum is palpated to make certain that the united levator fibers may be felt as a firm, thick mass of muscle. When the mucous membrane is torn, or after episiotomy, repair is completed in much the same manner except that the muscles may be more easily reached

through mucosal openings. When the muscles have been sutured, the mucosa may be closed by the usual means.

Reduction of Fractures of Radius.—Clark found that the most serviceable thing to use in reducing fractures of the lower end of the radius is a roller about 1 inch in diameter and 5 inches long, the ends being smaller than the middle, so that it can be conveniently handled. With this simple instrument the force can be accurately placed and easily controlled. The patient should be lying down with the broken arm on a firm table. Adequate anesthesia is essential. The arm is laid palm down over a triangular wooden block, which serves as a fulcrum under the anterior aspect of the radius about 2 cm. proximal to the fracture. The assistant holds the elbow down firmly against the table, and if there is excessive posterior displacement of the distal fragment he also holds the hand in hyperextension at the wrist. The operator, facing proximally with relation to the arm, places the roller across the dorsal aspect of the radius at a right angle to the shaft, just above the distal fragment. With one hand on each side of the patient's wrist, the operator's thumbs are hooked over the handle of the roller. Firm pressure is made, so that the roller is felt to be right down on the bone. This pressure is maintained as the instrument is rolled distally against the distal fragment. It first impinges on the posterior corner of this fragment, the force thus being in a distal direction with relation to the fragment. As the roller continues on toward the wrist, the force changes gradually from distal to anterior, thus pushing the fragment into the normal position. This rolling process usually has to be repeated several times. If palpable deformity persists, more force in the anterior direction should reduce it. Fractures of both radius and ulna from 3 to 5 cm. above the wrist, with complete posterior displacement and overriding of the distal fragment, can be reduced by the roller method. For immobilization after reduction, anteroposterior wood splints are best. They can be accurately applied with felt pads to produce pressure at the proper places over the fragments. They also permit easy inspection of the skin for possible pressure sores.

Canadian Medical Association Journal, Montreal

30: 1-118 (Jan.) 1934

Some Unusual Manifestations of Tuberculosis. H. Rolleston, Haslemere, Surrey, England.—p. 2.
Some Pitfalls in Diagnosis of Conditions Giving Rise to Chronic Abdominal Discomfort. J. S. McEachern, Calgary, Alta.—p. 8.
*Weight Taking in Prenatal Care. V. J. Harding and H. B. Van Wyck, Toronto.—p. 14.
Evolution of Cancer from Benign Cystic and Papillomatous Lesions of the Breast. E. M. Eberts, Montreal.—p. 17.
Radium Treatment of Primary Carcinoma of the Breast. G. Keynes, London, Ont.—p. 24.
Tuberculous Rheumatism. A. LeSage, Montreal.—p. 30.
Nasal Injuries. J. W. Gerrie, Montreal.—p. 37.
Etiology and Medical Treatment of Diseases of Extrahepatic Biliary Tract. C. Hunter, Winnipeg, Manit.—p. 41.
Cancer Research. F. J. H. Campbell, London, Ont.—p. 46.
The Cancer Problem. F. N. G. Starr, Toronto.—p. 48.
Early Diagnosis of Cancer of Tongue and Lip. W. A. Curry, Halifax, N. S.—p. 50.
Blood Pressure, Normal and Abnormal. J. M. Livingston, Waterloo, Ont.—p. 54.
Skin Lesions of Face. E. Trow, Toronto.—p. 57.
Diverticulitis. E. H. Shannon, Toronto.—p. 59.

Weight Taking in Prenatal Care.—Harding and Van Wyck believe that gains up to 5 pounds (2.3 Kg.) a month in pregnancy can be considered normal. It will be rare to find toxemias developing in this group. Gains from 5 to 8 pounds (2.3 to 3.6 Kg.) a month should be regarded with suspicion. Such patients should be placed on a salt-poor diet and restricted in caloric intake. They should be watched more closely than the strictly normal woman. Gains of 8 pounds and more a month indicate a potential toxemia. The closest supervision should be exercised over such patients. The gains in weight have preceded the more usual signs of toxemia; i. e., albuminuria, edema and hyperpiesis. If water retention can be prevented or controlled, the toxic process may be averted. The small number of toxemias in this series (about 1 per cent) justifies the practice of weight taking in prenatal care. Although definite signs of toxemia developed in a few cases not exhibiting convulsions, the maternal mortality was zero. In view of their observations the authors urge every obstetrician and general practitioner to practice weight taking during pregnancy. The use of scales should be general in every maternity and prenatal clinic. The taking and charting of the weight involves no expensive equipment or laboratory training. This duty could well be carried out by the nurse in charge, who would report any gains considered excessive.

Georgia Medical Association Journal, Atlanta

23: 1-42 (Jan.) 1934

Chronic Recurrent Migratory Ulcerative Colitis of (Bargen) Diplostreptococcus Infection Type. H. Joiner, Gainesville.—p. 3.
Collapse Treatment in Tuberculosis and Other Pulmonary Conditions. H. E. Crow, M. F. Haygood, K. N. Joseph and F. C. Whelchel, Alto.—p. 7.
Fistula in Ano. G. F. Eubanks, Atlanta.—p. 12.
Thrombo-Angiitis Obliterans. R. L. Kennedy, Metter.—p. 17.
Atabrine in the Treatment of Malaria. R. L. Miller, Waynesboro. —p. 23.

Indiana State Medical Assn. Journal, Indianapolis

27: 1-52 (Jan. 1) 1934

Brain Tumors. E. Sachs, St. Louis.—p. 1.
Diagnosis of Maxillary Sinusitis by Use of Opaque Oils. R. C. Beeler and J. N. Collins, Indianapolis.—p. 4.
Amebic Dysentery. P. D. Crimm, J. W. Strayer and D. M. Short, Evansville.—p. 8.
Office Treatment of Rectal Diseases. H. H. Wheeler, Indianapolis. —p. 10.
What Shall We Teach the Public Concerning Health and Diseases? T. B. Rice, Indianapolis.—p. 13.
Early Days of Flower Mission Training School. W. N. Wishard, Indianapolis.—p. 21.

Iowa State Medical Society Journal, Des Moines

24: 1-70 (Jan.) 1934

Treatment of Functional Menstrual Irregularities of Young Women. Della G. Drips, Rochester, Minn.—p. 1.
Diabetes and Its Complications. E. B. Winnett, Des Moines.—p. 7.
Rheumatic Heart Infection in Childhood. R. Stahr, Fort Dodge.—p. 12.
Toxoid in Diphtheria Prevention. B. A. Melgaard, Sioux City.—p. 14.
Nondiphtheritic Laryngitis. D. H. Kelly, Des Moines.—p. 15.
Diverticulum of Gallbladder. A. L. Pertl, Windom, Minn.—p. 17.

Journal of Allergy, St. Louis

5: 115-220 (Jan.) 1934

Studies on Pollen and Pollen Extracts: XI. Chemical Nature of Pollen Allergens. L. Unger, Marjorie B. Moore, H. W. Cromwell and Constance H. Seeber, Chicago.—p. 115.
Constitution and Allergic Manifestations: I. Age-Sex Incidence of Allergic Conditions: Preliminary Report. T. Nelson, Chicago.—p. 124.
Skin Reactions to Tobacco Antigen in Smokers and Nonsmokers. J. Harkavy, New York.—p. 131.
Evaluation of Skin Reactions in Food Sensitive Patients. A. H. Rowe, Oakland, Calif.—p. 135.
Importance of Adequate Tests and Their Proper Evaluations. Zella White Stewart, Iowa City.—p. 148.
*Allergic Relations of Normal and Abnormal Floras of the Intestine. R. L. Benson, Portland, Ore.—p. 152.
Probable Etiology of Pollinosis in Gallup, New Mexico. A. Watry and R. W. Lamson, Los Angeles.—p. 166.
Minor Allergy: Its Distribution, Clinical Aspects and Significance. W. T. Vaughan, Richmond, Va.—p. 184.
*Drinking Water as a Cause of Asthma. S. H. Watson and C. S. Kibler, Tucson, Ariz.—p. 197.

Allergic Relations of Floras of Intestine.—Benson states that the pathogenic gram-positive cocci found in stool culture of asthmatic patients and other allergic subjects behave as allergens. Their action combines in varying degrees type specificity and species specificity. A bacterial allergen of the latter nature is reported. The group specificity of "normal flora" bacteria was studied, and certain properties of the antigens are described. It is the author's belief that alterations in the integrity of the colonic mucosa make possible the absorption of products of the ordinary pathogens and likewise of the so-called normal flora. The behavior of the two differs in marked degree, but both must be considered as possible allergic factors in nonseasonal cases.

Drinking Water as a Cause of Asthma.—Watson and Kibler report a case in which it was proved that drinking water was the cause of asthma and so-called functional colitis. It is generally known that the chlorine radical of sodium hypochlorite is the effective part in making water safe for drinking. The sodium is inert. It therefore seems reasonable to believe that it was the chlorine radical which was responsible for the asthma in this case and not the sodium. As further corrobo-

ration, the patient salts his food with sodium chloride and can take sodium bicarbonate without untoward effect. It seems possible, in view of this particular experience, that chlorine in drinking water may be the cause of persistent residual symptoms in a certain number of allergic patients not otherwise relieved by the present-day rather exhaustive methods of treatment.

Journal of Biological Chemistry, Baltimore

104: 1-206 (Jan.) 1934. Partial Index

Precipitation of Nitrogenous Substance by Alkaline Mercuric Reagents, with Especial Reference to Urine. M. R. Everett, Fay Sheppard and Erma O. Johnson, Oklahoma City.—p. 1.

*Improvement in Van Slyke Method for Blood Gas Analysis. F. Rappaport and Klara Köck-Molnar, Vienna, Austria.—p. 29.

Studies in Gastric Secretion: V. Composition of Gastric Juice as a Function of Its Acidity. F. Hollander, Cold Spring Harbor, N. Y. —p. 33.

Ultrafiltration of Malt Amylase Solutions. Cornelia T. Snell, New York.—p. 43.

Comparison of the Methods for the Collection of Blood to Be Used in the Determination of Gases. J. M. Looney and Hazel M. Childs, Worcester, Mass.—p. 53.

Metabolism of Sulphur: XXI. Comparative Studies of Metabolism of *l*-Cystine and *dl*-Methionine in the Rabbit. R. W. Virtue and H. B. Lewis, Ann Arbor, Mich.—p. 59.

Catalytic Effect of Ferricyanide in Oxygen Absorption of Oleic Acid. B. F. Chow and S. E. Kamerling, Cambridge, Mass.—p. 69.

Necessary Versus Optimal Intake of Vitamin G (B_2). H. C. Sherman and L. N. Ellis, New York.—p. 91.

Method for Quantitative Estimation of Indoxyl Compounds in Blood. H. Sharlit, New York.—p. 115.

Creatinuria Among Adolescent Males. A. B. Light and C. R. Warren, Lawrenceville, N. J.—p. 121.

Fluctuations of Blood Sugar in Vitro. I. Neuwirth, New York.—p. 129.

Method for Analysis of Tissues. J. B. Graeser, J. E. Ginsberg and T. E. Friedemann, Chicago.—p. 149.

Iron Content of the Whole Blood of Normal Individuals. O. M. Helmer and C. P. Emerson Jr., Indianapolis.—p. 157.

Micromethod for Determination of Uronic Acids. B. Burkhart, L. Baur and K. P. Link, Madison, Wis.—p. 171.

Blood Gas Analysis.—By modifying the reagent used in the Van Slyke method for blood gas analysis, Rappaport and Köck-Molnar have found a way to avoid the clotting without making the analysis more difficult. Their reagent consists of 3.3 Gm. of potassium ferricyanide, 3.3 Gm. of saponin, 450 Gm. of urea, 5 cc. of octyl alcohol and enough distilled water to make 1,000 cc. The necessary quantity of lactic acid (0.66 cc. of normal lactic acid to 6 cc. of reagent) is put into the cup of the apparatus immediately before the reagent is made air free by evacuation. The authors state that this reagent may be used for macro-analyses and micro-analyses of all blood gases in one sample and for the determination of carbon monoxide in the blood after the absorption of the oxygen with pyrogallol or hydrosulphite. They also succeeded in performing oxygen and carbon dioxide analyses in Van Slyke's volumetric micro-apparatus. Their analyses agreed exactly with those performed with the original reagent.

Journal of Experimental Medicine, New York

59: 1-114 (Jan. 1) 1934

Investigation of the Etiology of Mumps. C. D. Johnson and E. W. Goodpasture, Nashville, Tenn.—p. 1.

Studies on Nervous System in Deficiency Diseases: II. Lesions Produced in the Dog by Diets Lacking the Water-Soluble, Heat-Stable Vitamin B_2 (G). H. M. Zimmerman and Ethel Burack, New Haven, Conn.—p. 21.

Nutritional Myopathy in Ducklings. A. M. Pappenheimer and Marianne Goettsch, with assistance of Anna Alexieff, New York.—p. 35.

An Investigation into the Significance of Hormone Factors in Experimental Poliomyelitis. C. W. Jungeblut and E. T. Engle, New York. —p. 43.

Study on Bacterial Proteins, with Especial Consideration of Gonococcus and Meningococcus. A. K. Boor and C. P. Miller, Chicago.—p. 63.

Carbohydrates of Gonococcus and Meningococcus: I. The Alcohol-Precipitable Fraction. C. P. Miller and A. K. Boor, Chicago.—p. 75.

Toxic Properties of Serum Extracts of Hemolytic Streptococci. Julia T. Weld, New York.—p. 83.

*Further Observations on Pathologic Similarities Between Experimental Scurvy Combined with Infection and Rheumatic Fever. J. F. Rinehart, C. L. Connor and S. R. Mettier, San Francisco.—p. 97.

Similarities Between Experimental Scurvy Combined with Infection and Rheumatic Fever.—Rinehart and his associates observed that in the guinea-pig chronic scurvy with superimposed infection (beta streptococcus) and to a lesser extent chronic scurvy alone produces an arthropathy with striking pathologic similarities to that of rheumatic fever and the closely allied condition of rheumatoid arthritis. Considerable significance is attached to the widespread occurrence in the experimental animal subjected to scurvy and infection, and to a lesser extent in scurvy alone, of lesions similar to if not identical with the fibrinoid degeneration that has been considered the fundamental lesion of rheumatic fever. A subcutaneous nodule essentially similar to the subcutaneous nodules of rheumatic fever was observed in one experimental animal. The authors call attention to a group of general pathologic changes frequently observed in rheumatic fever, which were also found in the experimental animals subjected to scurvy and infection. These include degenerative changes in skeletal muscle, focal necrosis in the liver, fibrosis of the malpighian bodies in the spleen, erythrophagocytosis in the lymph nodes and focal lymphocytic accumulations in the kidneys. They consider the problem of hemorrhage and suggest that a scorbutic state may be the basis of the hemorrhagic manifestations common to the acute phases of rheumatic fever. The unsatisfactory nature of previous experimental attempts to reproduce the pathologic changes of rheumatic fever is noted. The lesions produced by subjecting the guinea-pig to the combined influence of scurvy and infection are considered to be fundamentally similar in character and distribution to those of rheumatic fever. The pathologic observations recorded in this and a previous report are believed to offer evidence that the disease known as rheumatic fever may be the result of the combined influence of scurvy and infection. A subclinical degree of scurvy may constitute the rheumatic tendency in which the added factor of infection causes the development of rheumatic fever or possibly the closely allied condition of rheumatoid arthritis. Epidemiologic and clinical considerations appear to afford supportive evidence to this concept.

Journal of General Physiology, Baltimore

17: 327-486 (Jan. 20) 1934. Partial Index

Influence of Molecular Weight Antigen on Proportion of Antibody to Antigen in Precipitates. W. C. Boyd and S. B. Hooker, Boston.—p. 341.

Bacterial Cell Metabolism Under Anaerobic Conditions. H. H. Walker, C.-E. A. Winslow and M. Grace Mooney, New Haven, Conn.—p. 349.

Relation Between Toxicity, Resistance, and Time of Survival, and on Related Phenomena. L. Reiner, Tuckahoe, N. Y.—p. 409.

Blair's "Condenser Theory" of Nerve Excitation. W. A. H. Rushton, London, England.—p. 481.

Journal of Immunology, Baltimore

26: 1-80 (Jan.) 1934

Passive Sensitization of Guinea-Pig with Rabbit and Horse Antipneumococcus Type I Serums. Julia Mehlman and Beatrice Carrier Seegal, New York.—p. 1.

Studies on Antigenic Substances of Clostridium Parabotulinum: II. J. B. Gunnison, San Francisco.—p. 17.

Study of Antigenic Properties of Lecithin and Cephalin. A. Wadsworth, Elizabeth Maltaner and F. Maltaner, Albany, N. Y.—p. 25.

*Localization and Fate of Bacteria in Tissues. F. L. Sullivan, E. F. Neckermann and P. R. Cannon, Chicago.—p. 49.

Depression of Phagocytosis by Products of Staphylococci. R. M. Pike. —p. 69.

Localization and Fate of Bacteria in Tissues.—Sullivan and his associates observed that living staphylococci and paratyphoid bacilli injected intravenously into rabbits are quickly removed from the circulating blood stream and are localized particularly in the liver and spleen, where they are ingested and destroyed by phagocytes. The lungs, bone marrow and omentum remove distinctly fewer numbers, and such organs as the kidney, suprarenal, striated muscle, brain, testicle and thyroid remove negligible numbers under comparable conditions. In other words, the primary localization occurs principally in the two organs containing many macrophages and a sinusoid type of blood flow, whereas practically no localization occurs in organs poorly supplied with macrophages and with a rapid blood flow through vessels lined with ordinary endothelium. Active immunization does not significantly affect the comparative degrees of localization for different organs of the same animal, although it leads to a more energetic removal of the bacteria from the blood stream by the liver and spleen. Bacteria are concentrated more quickly in the liver and spleen of immune than of normal animals but are also killed more rapidly within these organs. Active intravenous immunization leads to a stimulation of mesenchymal tissues, particularly in the liver and spleen, with a resulting elevation of the functional state of the system of macrophages.

Journal of Pediatrics, St. Louis

4: 1-158 (Jan.) 1934

Rickets. E. Gorter, Leiden, Holland.—p. 1.
Hodgkin's Disease in Childhood: Clinical Study, with Résumé of Literature to Date. C. A. Smith, Boston.—p. 12.
Multiple Ulcers of Stomach in a New-Born Infant with Staphylococcus Septicemia. Ethel C. Dunham and M. T. Shelton, New Haven, Conn. —p. 39.
Rupture of Stomach in New-Born Infants: Report of Two Cases. Ethel C. Dunham and R. M. Goldstein, New Haven, Conn.—p. 44.
Unusual Case of Esophageal Obstruction in a Child. C. S. Culotta and L. N. Claiborn, New Haven, Conn.—p. 51.
Gonorrheal Peritonitis in Female Children. E. H. Harris and R. Berman, Minneapolis.—p. 59.
Limitations of Cereal-Milk Diets for Hemoglobin Formation. C. A. Elvehjem, E. B. Hart and W. C. Sherman, Madison, Wis.—p. 65.
Neutralization of Schick Reaction by Human Blood. H. E. Thelander, San Francisco.—p. 75.
*Observations on Management and Treatment of Juvenile Diabetes. G. B. Bader, New York.—p. 77.
Determination and Evaluation of Diets in Children with Chronic Heart Disease. M. M. Maliner, Brooklyn, and Beatrice Bergman, New York.—p. 87.
Exstrophy of Bladder (Persistent Cloaca) Associated with Intestinal Fistulas: Brief Analysis of Thirty-Six Cases of Anal and Rectal Anomalies from Records of Charity Hospital in New Orleans. J. R. Veal and Elizabeth M. McFetridge, New Orleans.—p. 95.
Use of Lassar's Paste in "Weeping Eczema" of Infancy: Note. P. J. White, St. Louis.—p. 104.
The Age of Choice for Operations of Choice in Infancy and Childhood. T. H. Lanman, Boston.—p. 107.

Management of Juvenile Diabetes.—Bader chooses diets for feeding diabetic children as nearly similar to the diets fed normal children as possible. They are high in carbohydrates and low in fats. From 2 to 3 Gm. of protein per kilogram of body weight is allowed unless the child is considerably underweight and undersized. An equal number of fat grams is given. The remainder of the total calories required is furnished as carbohydrates. The question of the amount of food in calories to be given to a particular diabetic child varies as in the normal child according to its individual needs. One must be guided by the child's response in growth and gain in weight. The advantages of such a diet are described. At least two daily doses of insulin are required, one before breakfast and the other before supper. Sometimes three daily doses of insulin are advantageous. A third dose of insulin has an economic advantage, because it reduces the total insulin required for twenty-four hours. It also reduces perceptibly the amount of insulin necessary per dose and thus reduces the likelihood and frequency, as well as the severity, of insulin reactions. A detailed account is given of a diabetic child on such a regimen. It includes a method of computing the diet and the insulin, the manner of dividing the diet and the insulin, a technic for desugarizing and stabilizing, and subsequent care. The importance of proper diabetic control is emphasized, because it is the uncontrolled diabetic child who does not thrive.

Journal of Urology, Baltimore

31: 1-120 (Jan.) 1934

Surgical Repair of Hydronephrosis, with Reference to Technical Points Favoring Relief. C. P. Mathé and E. de la Peña, San Francisco. —p. 1.
*Lateral Pyelogram: Investigation of Its Value in Urologic Diagnosis. H. O. Mertz and H. G. Hamer, Indianapolis.—p. 23.
Carcinoma and Tuberculosis Occurring in the Same Kidney: Review of Literature and Case Report. E. Rupel, Indianapolis.—p. 57.
Intrarenal Cystic Myxolipoma. D. R. Melen and I. Gáspár, Rochester, N. Y.—p. 69.
Embryoma of Kidney in an Infant with Osseous Metastases: Report of Case. E. R. Mintz, Boston.—p. 79.
Nonspecific Metastatic Epididymitis. W. W. Buckingham, Ann Arbor, Mich.—p. 87.
Nephrectomy Table. N. F. Ockerblad, Kansas City, Kan.—p. 117.

Value of Lateral Pyelograms in Urologic Diagnosis.—Mertz and Hamer state that lateral pyelography is practical and can be easily performed on the ordinary x-ray cystoscopic table without added discomfort or risk to the patient. The renal pelvis and ureter can be satisfactorily visualized in the majority of cases. A study of the lateral pyelogram should include the vertical and anterior position of the kidney, the degree of horizontal and vertical rotation of the kidney, the outline of the pelvis as compared to that in the anteroposterior pyelogram, and the course followed by the ureter. The authors' cases have been too few to establish general rules of interpretation, yet they feel that their experience is sufficient to justify a general report.

Kansas Medical Society Journal, Topeka

35: 1-40 (Jan.) 1934

Problems of Chronic Arthritis. R. L. Haden, Cleveland.—p. 1.
Congenital Hypertrophic Pyloric Stenosis. E. G. Padfield, Salina. —p. 6.
Vincent's Infection. J. K. Attwood, La Crosse.—p. 10.

Maine Medical Journal, Portland

25: 1-20 (Jan.) 1934

My Guardian Angel. J. A. Spalding, Portland.—p. 5.
Values in Diagnostic Errors. C. H. Jameson, Rockland.—p. 7.
Deafness: Frequency, Classification and Some of the Common Causes. S. E. Fisher, Portland.—p. 11.

Michigan State M. Society Journal, Grand Rapids

33: 1-48 (Jan.) 1934

Transurethral Electroresection of Bladder Neck Obstruction. H. L. Kretschmer, Chicago.—p. 1.
Nasal Infection in Cataract. J. G. Huizinga, Holland.—p. 5.
Report of Four Foreign Body Cases with Endoscopic Removal. W. K. Slack, Saginaw.—p. 10.
Discussion of Gallbladder Disease and Its Management. H. J. Vanden Berg, Grand Rapids.—p. 12.
Preventive Medicine as Cared for by the Family Physician. G. M. Byington, Battle Creek.—p. 15.
Pulmonary Complications Following Anesthesia. C. Lemley, Detroit. —p. 18.
Lymphosarcoma Invading the Orbit. R. J. Sisson, Detroit.—p. 21.
Practice of Medicine in Germany. A. H. Mollmann, Grand Rapids.—p. 22.
*Neoarsphenamine Treatment of Intestinal Protozoal Diseases in Man, with Especial Reference to Amebic Dysentery. W. L. Chandler, Lansing.—p. 27.

Neoarsphenamine Treatment of Intestinal Protozoal Diseases.—Chandler treated several hundred infections involving eleven different species of intestinal protozoa of man with three intravenous injections of from 0.6 to 0.9 Gm. of neoarsphenamine at intervals of five days. He presents protocols of seventeen cases of amebic dysentery, in all of which the organism was absent after three injections of neoarsphenamine. Two of these cases were observed over a period of ten years, during which time six stool examinations in one case and ten in the other one showed no Endamoeba dysenteriae organisms. The author believes that these organisms are more easily eliminated from the digestive tract by the use of intravenous injections of neoarsphenamine than some of the other intestinal protozoa. In the initial experiments on this organism, 0.6 Gm. was used as a standard dose. Other organisms, especially the trichomonads and spirochetes, required as much as 0.9 Gm. to bring about their complete elimination. Since the microscopic examination of a single stool or even the examination of a series of stools may fail to reveal all the intestinal protozoa that may be present in any given case, a maximal dose (0.9 Gm. in the case of men and 0.75 in women patients) has been used by the author in all intestinal protozoal infections for the past thirteen years. Following the intravenous injection of 0.6 Gm. of neoarsphenamine, the organisms were absent from the third consecutive stool. Often these were not found in the second stool. In one case, in which 0.3 Gm. was injected, the organisms were absent from the second and third stools following the injection and from three consecutive stools examined one month after the injection, but were found in stools examined nine months after the injection. In subsequent treatment three injections of 0.6 Gm. were given at intervals of five days. No organisms were found in stools examined at intervals for several years. These seventeen cases represent data of the initial experimental cases. During the past fourteen years he has treated a large number of cases with three intravenous injections of from 0.6 to 0.9 Gm. of neoarsphenamine. Symptoms rapidly disappeared, even in cases of liver abscesses and arthritis.

Missouri State Medical Assn. Journal, St. Louis

31: 1-44 (Jan.) 1934

Development of the Tear-Searing Operation Up to Date. P. C. Kronfeld, Chicago.—p. 1.
Medicosociologic Aspects of Chronic Glaucoma. J. Green, St. Louis. —p. 6.
Relationship Between Diseases of the Nose and and Throat and Pulmonary Diseases. L. W. Dean, St. Louis.—p. 13.
Anorectal Infection: Its Relation to General Medicine. F. B. Campbell, Kansas City.—p. 15.
Simplicity in the Treatment of Anorectal Diseases. P. V. Woolley, Kansas City.—p. 17.
Referred Symptoms of Anorectal Diseases: Their Probable Modes of Production. G. H. Thiele, Kansas City.—p. 20.

Pernicious Anemia with Neurologic Symptoms and Normal Blood Picture: Report of Four Cases. G. W. Robinson, Jr., and P. Shelton, Kansas City.—p. 25.
Epithelial Tumors of the Skin. R. L. Sutton, Jr., Kansas City.—p. 28.
Surgical Treatment of Bleeding Duodenal Ulcer. C. J. Hunt, Kansas City.—p. 31.

Nebraska State Medical Journal, Lincoln

19: 1-40 (Jan.) 1934

Complications of Pulmonary Tuberculosis. L. A. Conway, Colorado Springs, Colo.—p. 1.
Diverticulitis. F. L. Wilson, Stuart.—p. 6.
Nutritional Factor in Tuberculosis. V. E. Levine, Omaha.—p. 10.
Carcinoma of Rectum and Its Management. L. E. Moon, Omaha.—p. 13.
Use of Live Maggots in Treatment of Osteomyelitis. S. J. Carnazzo, Omaha.—p. 17.
Pilonidal Sinus. J. H. Lynch, Fairbury.—p. 20.
Thyroid Gland. M. Emmert, Omaha.—p. 23.
Migraine. O. C. Nickum, Omaha.—p. 26.

New England Journal of Medicine, Boston

210: 117-174 (Jan. 18) 1934

Place of Iodine in Treatment of Goiter. H. M. Clute and L. S. Pilcher 2d, Boston.—p. 117.
Phases of Foreign Protein Sensitization in Human Beings. T. D. Jones and J. R. Mote, Boston.—p. 120.
Gastro-Intestinal Allergy Associated with Transient Intraventricular Block. J. C. Healy, D. T. Gallison, Boston, and J. Brudno, Quincy, Mass.—p. 123.
The Association of Diabetes and Tuberculosis: III. Clinical Features. H. F. Root, Boston.—p. 127.
Arthritis and Systemic Involvement as Exemplified in a Group of Dead Arthritics. H. A. Nissen and K. A. Spencer, Boston.—p. 147.
Neurofibromatosis in Children: Report of Two Cases. C. C. Stewart, Hanover, N. H.—p. 150.

210: 175-236 (Jan. 25) 1934

Agranulocytic Angina Associated with the Menstrual Cycle. H. Jackson Jr. and D. Merrill, Boston, with assistance of Marion Duane, Boston.—p. 175.
Observations on Possible Relation Between Agranulocytosis and Menstruation with Further Studies on Case of Cyclic Neutropenia. W. P. Thompson, New York.—p. 176.
Mechanics and Reduction of Displaced Upper Femoral Epiphysis. J. D. Adams, Boston.—p. 178.
Jaundice in Arthritis: Its Analgesic Action. N. Sidel and M. I. Abrams, Boston.—p. 181.
George W. Gay Lecture on Medical Ethics: The Theology of Medicine. R. B. Osgood, Boston.—p. 182.
*The Association of Diabetes and Tuberculosis: IV. Treatment, Prognosis and Prevention. H. F. Root, Boston.—p. 192.
Application of Psychoanalytic Concepts to General Psychotherapy. M. W. Peck, Boston.—p. 207.

The Association of Diabetes and Tuberculosis.—Root states that, in order to promote good nutrition and resistance to tuberculosis, the use of insulin should be begun immediately in all youthful diabetic patients. Considering age, weight and diet, the tuberculous diabetic patient requires about the same dose of insulin as the nontuberculous patient. The average daily dose in eighteen cases of tuberculosis and diabetes (between the ages of 15 and 29 years) was 39 units. Serious hypoglycemia must be guarded against by the cautious use of insulin in severely ill or emaciated tuberculous diabetic subjects. In sixty-nine fatal cases of tuberculosis and diabetes treated with insulin the patients lived 8.6 years, whereas in ninety fatal cases treated without insulin the patients lived only 5.4 years after the onset of diabetes. In the last ten cases of active tuberculosis and diabetes with fever, an average diet of 157 Gm. of carbohydrate, 83 Gm. of protein and 116 Gm. of fat, totaling 2,004 calories, and 42 units of insulin were administered. Patients suffering from acidosis and coma who later develop tuberculosis should be followed up yearly by roentgen examination for the detection of developing tuberculosis. Eighteen patients alive in 1933 have survived active pulmonary tuberculosis for an average of nine years. The recognition of pulmonary tuberculosis in a truly incipient stage in a diabetic patient is almost unknown in the literature. Ten cases occurred among 245 in the author's series. Prognosis for the tuberculous diabetic subject depends on earlier diagnosis of the tuberculosis by more frequent physical and roentgen examination. The modern prolongation of life of the diabetic patient and his greater entrance into general activities expose him to tuberculosis and may result in a greater incidence of tuberculosis among diabetic patients. Uncontrolled diabetes increases the chance of developing tuberculosis, as indicated by the development of tuberculosis in persons who have had coma. Preventive measures include early diabetic treatment and hygiene.

New Orleans Medical and Surgical Journal

86: 437-524 (Jan.) 1934

Relation of Practicing Physician to Control of Tuberculosis. A. E. Keller, Nashville, Tenn.—p. 437.
Iodine and Its Relation to Health: Review. Margaret C. Moore and H. W. Moseley, New Orleans.—p. 449.
Some Surgical Aspects of Obstetrics. M. L. Flynt, Meridian, Miss.—p. 458.
Cervical Obstructions. W. F. Hand, Jackson, Miss.—p. 462.
Neuronitis Complicating Pregnancy. G. Y. Gillespie, Jr., Greenwood, Miss.—p. 466.
Carcinoma of the Colon. M. Q. Ewing, Amory, Miss.—p. 470.
Allergic Nasal Conditions: Description of a Nasal Symptom Complex Suggesting Allergic Manifestations. E. H. Jones, Vicksburg, Miss.—p. 474.
Newer Methods in Treatment of Prostatic Obstructions. R. A. Hennessey and A. D. Mason, Memphis, Tenn.—p. 480.

New York State Journal of Medicine, New York

34: 41-84 (Jan. 15) 1934

Analysis of Three Hundred and Seventy-Six Consecutive Oxygen-Treated Cases from a Study Made at the Presbyterian Hospital, New York, from 1929 to 1932. A. L. Barach, New York.—p. 41.
Etiology, Symptoms and Diagnosis of the Inflammatory Type of Hoarseness. W. A. Krieger, Poughkeepsie.—p. 47.
Neurologic Aspects of Hoarseness. E. D. Friedman, New York.—p. 48.
Indications for Thyrotomy and Laryngectomy in Carcinoma of the Larynx. C. J. Imperatori, New York.—p. 51.
Nonsurgical Treatment of Aphonia (Hoarseness). I. W. Voorhees, New York.—p. 53.
Benign Neoplasms of the Larynx. D. S. Cunning, New York.—p. 56.
Tuberculous, Malignant and Syphilitic Types of Hoarseness. D. H. Jones, New York.—p. 59.
*Etiologic Factors of Mammary Cancer in Two Hundred Women: Also a Control Study of One Hundred Normal American Women. F. E. Adair, New York.—p. 61.

Etiologic Factors of Mammary Cancer.—Adair studied 200 cases of cancer of the breast, with the idea of evaluating the various factors of breast drainage and stagnation. Chemical analysis is made of the fluid and creamy material extracted from the breast by pumping. In these fluids both lactic and butyric acids are found. These acids are considered to be an important part of those irritating factors responsible for the tissue reactions resulting in hypertrophy, precancerous changes and, eventually, cancer. The breasts are pumped in order to abolish localized mastitis. Only 8.5 per cent of the cases in which mammary carcinoma developed gave a normal nursing history, a history entirely free from the various developmental or accidental incidents leading to at least one and sometimes two, three or more of the various factors causing impaired drainage. In this cancer group every third pregnancy ended in miscarriage or abortion, while in the control cases of 100 normal women there was only one miscarriage or abortion for every seven pregnancies. Of the women having cancer and bearing children, 20 per cent nursed only a part of the children and 16 per cent did not nurse their children at all. Of the seventy-eight mothers in the 100 control cases, sixty-two gave a normal history of nursing. The clinical studies agree with the experimental studies of Bagg, who produced artificial stagnation by breeding experiments and by ligating the nipples of the breasts.

Ohio State Medical Journal, Columbus

30: 1-64 (Jan. 1) 1934

Sciatic Pain: Its Clinical Significance. A. H. Freiberg, Cincinnati.—p. 21.
Status of Peptic Ulcer in 1933. J. D. Dunham, Columbus.—p. 25.
The Eye in Relation to Modern Industry. W. H. Snyder, Toledo.—p. 29.
Mortality Rates of Obstetric Departments in General Hospitals. A. J. Skeel, Cleveland.—p. 31.
Encephalitis Lethargica. F. L. Rhodes, Massillon.—p. 33.

Oklahoma State Medical Assn. Journal, Muskogee

27: 1-36 (Jan.) 1934

Rheumatic Heart Disease. A. B. Chase, Oklahoma City.—p. 1.
Gonorrheal Endocarditis: Case Report with Autopsy. W. W. Rucks Jr., Oklahoma City.—p. 3.
Nephritis: As Seen in the Laboratory. W. J. Dell, McAlester.—p. 5.
Renal Pathology Seen in Toxemias of Pregnancy. B. A. Hayes, Oklahoma City.—p. 8.
Prevention of Endemic Goiter. R. M. Howard and F. M. Lingenfelter, Oklahoma City.—p. 11.
Blood Transfusion. F. A. Hudson and E. E. Cary, Enid.—p. 15.

Philippine Journal of Science, Manila

52: 219-348 (Nov.) 1933

Bacteriologic, Chemical and Biologic Studies of Reconstituted Milk. R. Randall, Manila.—p. 219.
Sclerotium Seed Rot and Seedling Stem Rot of Mango. M. A. Palo, Manila.—p. 237.
Colobot Essential Oil from Citrus Hystrix Dc. Var. Torosa. Simeona Santiago Tanchico and A. P. West, Manila.—p. 263.
Identity of Anota Violacea and Rhynchostylis Retusa. E. Quisumbing, Manila.—p. 271.
Stability of a New Chlorine Product. R. H. Aguilar and L. Ocampo, Manila.—p. 281.
Additions to Aphid Fauna of Formosa (Hemiptera), II. R. Takahashi, Formosa.—p. 291.
New or Little Known Tipulidae from Eastern Asia (Diptera), XVI. C. P. Alexander, Amherst, Mass.—p. 305.

Public Health Reports, Washington, D. C.

49: 53-76 (Jan. 12) 1934

Sickness Among Male Industrial Employees During the Third Quarter of 1933. D. K. Brundage.—p. 53.
Use of Pure Strain Animals in Studies on Resistance to Transplantable Tumors. H. B. Andervont.—p. 60.

49: 77-110 (Jan. 19) 1934

Physiologic Response of Peritoneal Tissue to Dusts Introduced as Foreign Bodies. J. W. Miller and R. R. Sayers.—p. 80.
Sulphur Dioxide for Fumigation of Ships: Methods of Use and Prospect of Improvement. C. L. Williams.—p. 89.

Southern Medical Journal, Birmingham, Ala.

27: 1-94 (Jan.) 1934

Experimental Studies with Viable Muscle Grafts in Kidney Surgery. N. F. Ockerblad, Kansas City, Mo.—p. 1.
Notes on Functional Activity of the Prefrontal Lobes. R. G. Spurling, Louisville, Ky.—p. 4.
A High Fat, Low Residue Diet in Treatment of Chronic Constipation. R. S. Leadingham, Atlanta, Ga.—p. 9.
Metastatic Melanosarcoma of the Tonsils. V. K. Hart, Charlotte, N. C., and R. H. Crawford, Rutherfordton, N. C.—p. 12.
Diagnosis and Treatment of Functional Uterine Bleeding. C. Mazer and B. R. Katz, Philadelphia.—p. 13.
Immunity in Infants to Infectious Diseases: Placental Antibodies. C. F. McKhann and Harriet Coady, Boston.—p. 20.
*Comparative Study of the Value of Tetrachlorethylene as a Means of Ultimate Control and Eradication of Hookworm Disease in Children. H. F. Garrison, Jackson, Miss.—p. 24.
Persistent Occipitoposteriors. E. Speidel, Louisville, Ky.—p. 28.
Intestinal Obstruction Following Gynecologic Operations. P. H. Wood, Memphis, Tenn.—p. 30.
A Study of Disease in the Negro. I. I. Lemann, New Orleans.—p. 33.
Glomerular Changes in Nephritis. W. G. MacCallum, Baltimore.—p. 39.
Backache. W. B. Owen, Louisville, Ky.—p. 40.
Management of Nongonorrheal Prostatitis. P. S. Pelouze, Philadelphia.—p. 43.
Clinical Value of an Experimental Study of the Gallbladder. D. N. Silverman, New Orleans.—p. 46.
Medicolegal Pathology. J. A. McIntosh, Memphis, Tenn.—p. 49.
Medical Indications for Sterilization and Contraceptive Measures. E. L. King, New Orleans.—p. 51.
Treatment of Sterile, Contaminated and Infected Wounds. E. D. Newell, Chattanooga, Tenn.—p. 53.
Possible Adjustments in County Health Department Programs. J. W. Mountin, Washington, D. C.—p. 59.
An Open Safety Pin Swallowed and Passed by Rectum. G. T. Tyler Jr., Greenville, S. C.—p. 60.

Value of Tetrachlorethylene in Hookworm Disease.—According to Garrison, statistics from laboratories of departments of health of the South, from physicians in private practice and from other well known authorities would indicate that, although the percentage of hookworm infestation has been greatly reduced in the last twenty years, it is evident that hookworm is still prevalent. The results obtained with tetrachlorethylene, as compared with those of oil of chenopodium and carbon tetrachloride, by all who have had an opportunity to make any comparison, even under field conditions, would indicate the absolute superiority of tetrachlorethylene. Studies of the pharmacology, toxicology and therapeutic effects of tetrachlorethylene indicate that it is the safest, most economical and best known treatment for hookworm disease.

Tennessee State Medical Assn. Journal, Nashville

27: 1-32 (Jan.) 1934

Some Practical Points on Treatment of Fractures. R. W. Billington, Nashville.—p. 1.
Don't Forget the Gallbladder. C. P. Fox, Greeneville.—p. 6.
"Refraction." R. H. Newman, Knoxville.—p. 10.
Open Treatment of Fractures of the Face. J. J. Shea, Memphis.—p. 15.

United States Naval Med. Bulletin, Washington, D. C.

32: 1-132 (Jan.) 1934

Gonorrheal Epididymitis. R. P. Parsons.—p. 1.
Treatment of the Chinese Wounded at a Base Hospital in Peiping, China. M. D. Willcutts.—p. 8.
Combined Medical and Surgical Treatment of Gastric Disorders. L. W. Johnson and J. F. Finnegan.—p. 14.
*Use of Plasmochin in Malaria to Prevent Relapse. R. Hayden.—p. 19.
The Friedman Hormone Test for Pregnancy. W. W. Hall and E. D. McMorries.—p. 20.
Fractures of the Mandible. C. H. Mack and J. H. Connelly.—p. 31.
Spinal Anesthesia: Report of One Hundred and Twenty-Five Cases. G. B. Creagh.—p. 36.

Use of Plasmochin in Malaria.—Hayden gave follow-up treatment to 125 men having histories of recent acute malaria. Seventy-two were given quinine alone, 10 grains (0.65 Gm.) daily except Sunday for a period of eight weeks. Of these, seventeen men, 23.6 per cent, had acute recurrence of their malaria either toward the end of their period of follow-up treatment or shortly after its completion. The remaining fifty-three men were given follow-up treatment of quinine and plasmochin. This treatment consisted of 10 grains of quinine daily for three weeks and 0.02 Gm. of plasmochin daily for six consecutive days each week for the first and second weeks of this treatment. Of the fifty-three men, only three had relapses, 5.6 per cent. The malarial infections were of various types—tertian, quartan, malignant tertian, and mixed. In view of his experience in this respect at Quantico and of reports from other places on the same subject, the author is of the opinion that plasmochin should be regarded as an essential part of postmalarial follow-up treatment and should be administered in combination with quinine.

Virginia Medical Monthly, Richmond

60: 581-644 (Jan.) 1934

Mental Hygiene Program in the Making. W. F. Drewry, Richmond.—p. 581.
Relation of Iodine, with Especial Reference to Iodized Salt, to the Incidence of Simple and Adenomatous Goiter. W. H. Higgins, Richmond.—p. 586.
Growing Old in Medicine. O. T. Amory, Newport News.—p. 589.
Cyclic Vomiting and Migraine in Children. P. S. Smith, Abingdon.—p. 591.
Influenza: Some Observations. H. G. Preston, Harrisonburg.—p. 595.
Nasal Pathology as a Nonspecific Factor in Treatment of Inhalant Allergy. W. T. Vaughan, Richmond.—p. 598.
Management of Congenital Cataracts: Report of Eleven Cases. E. G. Gill and J. A. Pilcher Jr., Roanoke.—p. 604.
The Maxillary Antrum and Its Dental Neighbor. W. A. Wells, Washington, D. C.—p. 606.
Find Your Diabetics. T. J. Tudor, Norton.—p. 610 .
Carcinoma of the Larynx: Report of Cases. F. D. Woodward, University.—p. 613.
Pelvic Inflammation in Women. C. H. Lupton, Norfolk.—p. 617.
*Necrobacillosis: Clinical Entity. F. W. Shaw, Richmond.—p. 623.
Acute Mania. A. F. Wood, Parksley.—p. 627.
Tonsil Electrocoagulation with the Biactive Electrode. J. B. H. Waring, Wilmington, Ohio.—p. 630.

Necrobacillosis.—Shaw emphasizes the fact that necrobacillosis is a disease widespread in nature and that only a few infections have been reported in man, but these have been of such a variety of clinical manifestations and geographic distribution as to lead one to infer that the disease is of more common occurrence than the reports would indicate. The difficulty of isolation of anaerobes in general and of Actinomyces necrophorus in particular is probably responsible for the low record. Few anaerobic cultures are made, in general. From Cunningham's report, anaerobic cultures should be made of blood in all cases of infectious jaundice. Some of the tuberculous hips are, in all probability, necrophorus infections. The treatment of necrobacillosis is local and systemic—potassium iodide (or arsphenamine in van Wering's case) internally, and the use of antiseptics in the cutaneous cases.

West Virginia Medical Journal, Charleston

30: 1-48 (Jan.) 1934

Coronary Thrombosis. J. P. Mullen, Wellsburg.—p. 1.
Fetal Birth Injuries, with Especial Reference to Intracranial Lesions. P. B. Bland, Philadelphia.—p. 9.
Influenza. D. N. Barber, Charleston.—p. 18.
Immunizations and Vaccines. R. C. Farrier, Morgantown.—p. 20.
Osteoporosis Following Trauma. J. M. Moore, Logan.—p. 22.
Arterial Hypertension. T. P. Sprunt, Baltimore.—p. 28.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

British Journal of Ophthalmology, London

18: 1-64 (Jan.) 1934

Retinal Detachment and Its Treatment by Surgical Methods: Review of Four Hundred and Twenty-Five Cases. C. D. Shapland.—p. 1.
Vascularization of the Whole Vitreous in Case of Hemorrhagic Retinitis, with Retention of Normal Acuity of Vision. D. V. Giri.—p. 24.
New Vessel Formation in the Vitreous. G. Flint and D. Harrington. —p. 27.
Lead Poisoning in the First Century. W. J. Rutherfurd—p. 36.
Persistence of Circulation in Posterior Vascular Sheath of the Lens in the Right Eye of a Girl Aged Fourteen Years. H. Tomkin.—p. 39.

British Journal of Physical Medicine, London

8: 117-132 (Dec.) 1933

Diathermy, Short Diathermy and Ultra Diathermy. F. Nagelschmidt. —p. 117.
Some Investigations of the Properties of Short Waves. T. Reiter.—p. 119.
Catarrhal Conditions in the Nose Treated by Ionization. J. S. Crabbe. —p. 122.
"Octozone" Therapy: Problems, Theories and Facts. Sheila Macpherson.—p. 123.
Diathermy in Dermatology. G. B. Dowling.—p. 125.

8: 133-148 (Jan.) 1934

*Diathermy in Treatment of Pneumonia. H. E. Stewart.—p. 133.
Physical Medicine in the Treatment of Digestive Disorders. A. P. Cawadias.—p. 135.
Physiotherapy in Ophthalmology. P. Bauwens.—p. 138.

Diathermy in Treatment of Pneumonia.—Stewart believes that the patient who does not respond favorably in any clinical sign after three or four diathermy treatments presents an almost fatal prognosis. Large increase in diathermy dosage is indicated when the patient is improved temporarily by treatment. No other indicated measure in the treatment of the disease need be omitted because of the use of diathermy. It is one of the safest measures known to medical practice; as far as is known, no accident or untoward effect has followed the administration of some 20,000 individual treatments. The use of diathermy in pneumonia is advocated by all who have had an opportunity for clinical study of its effects. The method has a sound physiologic basis, gives the patient a measure of relief which alone would justify its use, reduces the average mortality some 70 per cent and is well worth further clinical application and study.

British Journal of Radiology, London

7: 1-64 (Jan.) 1934

X-Ray and Radium Therapy in the Future. N. S. Finzi.—p. 9.
Modern X-Ray Development. A. Bouwers.—p. 21.
*Improved Technic for Examination of the Shoulder. J. N. Fergusson. —p. 33.

Roentgen Examination of the Shoulder.—Fergusson describes a technic for obtaining a lateral view of the shoulder. The patient is placed supine on the Potter-Bucky diaphragm and the sound shoulder is elevated by pads so as to cause 30 or 40 degrees of rotation of the body. The head is supported by a cushion and turned sideways toward the damaged side, which brings the scapula forward and more nearly parallel with the film. The curved type of Potter-Bucky diaphragm has advantages for this work. The film must be suitably decentered. The patient is now helped to turn over and to lie nearly prone with the sound shoulder elevated and the damaged one in contact with the diaphragm top. In this instance it is allowed to slide a little to one side of the center line. The scapula is inclined slightly from the vertical angle and in the path of the oblique ray. Judgment of the correct angle comes with experience. It helps if the arm can lie along the side of the chest and somewhat behind. This oblique prone position sounds uncomfortable, but many patients manage it. One of its advantages is that the body weight is utilized; it helps to keep the scapula a little way from the thorax. Muscular relaxation also helps. Sometimes the bone stands out like a wing. The author generally uses a kilovoltage of about 65 for the first position and 80 for the second. Some discrimination is required in selecting cases suitable for the positions described, especially the prone position.

British Journal of Surgery, Bristol

21: 381-556 (Jan.) 1934

Some Early Surgical Cases: II. The Edwin Smith Papyrus. D. Power.—p. 385.
Carcinoma of the Kidney. G. Simpson.—p. 388.
Right Paraduodenal Hernia. A. C. Halliwell.—p. 398.
*Ossification in Internal Semilunar Cartilage: Two Cases. H. J. Burrows.—p. 404.
Fallacy of Expectant Treatment in Acute Appendicitis. H. C. W. Nuttall.—p. 411.
Pathology, Diagnosis and Treatment of Congenital Diaphragmatic Hernia in Infants. N. R. Barrett and C. E. W. Wheaton.—p. 420.
Prostatectomy with Closure: Five Years' Experience. S. H. Harris. —p. 434.
Enlargement of Anterior Portion of Prostate Gland. B. S. Cran.—p. 453.
Inquiry into Results of Surgical Treatment of Genital Tuberculosis in the Male. R. O. Lee and K. Bowes.—p. 456.
Calcification, Decalcification and Ossification. R. W. Jones and R. E. Roberts.—p. 461.
*Hyperparathyroidism with Certain Unusual Features: Case. T. W. Mimpriss and R. W. Butler.—p. 500.
Occurrence of Scrotal Hernia in Mice Under Treatment with Estrin. H. Burrows.—p. 507.
Benign Giant-Cell Tumor of Third Cervical Vertebra: Case Report. J. A. Macfarlane and E. A. Linell.—p. 513.
Adenopapilloma of Stomach Associated with Lymphoid Hyperplasia of Duodenum. A. E. Webb-Johnson and E. G. Muir.—p. 519.
Spontaneous Dislocation of the Hip in Childhood. P. N. Ray.—p. 523.
Keloid Formation, with Comments: Two Cases. C. E. L. Burman. —p. 527.
Acute Infective Osteomyelitis of Tibia: Use of Winnett Orr Technic. M. G. O'Malley.—p. 530.

Ossification in Internal Semilunar Cartilage.—Burrows reports two cases of ossification in the internal semilunar cartilage. Histologic examination in the first case shows that the hard nodule contained bone. The fibrocartilage immediately surrounding this is in places clearly demarcated from the trabeculae; in other parts there is some tendency to a blending or transition. It shows patches of calcification, and its cells are increased in number and hypertrophied. Many of them are surrounded by chondrin balls. While this tissue retains the essential characters of fibrocartilage, its appearance approximates that of hyaline cartilage. The portion immediately contiguous to the main nodule of bone contains spaces occupied by loose connective tissue and blood vessels. Some of these are surrounded or partly surrounded by a thin lamella of bone. Osteoclasts are inconspicuous. The sections suggest: 1. Hyperplasia of the fibrocartilage with deposition of calcium; the cells multiply and enlarge and the proportion of matrix to fibers increases. 2. Replacement of areas of cartilage by loose vascular connective tissue. 3. Formation of true bone in the walls of the cavities so formed. The appearances in the other case resemble those in the first in that the fibrocartilage contiguous to the bone has undergone hyperplasia. They differ in that the vascular connective tissue spaces are relatively absent from the zone of hyperplastic cartilage. In parts the cells are particularly numerous and may tend to become arranged in rows at right angles to the zone of ossification. The nodule of bone contains several small islands of hyaline cartilage and there is a thin shell of this overlying a part of the surface. Both patients are young men who had received an injury at football a few years previously. Each had been troubled by a return of symptoms from time to time, with apparent complete recovery in the intervals. Locking had been absent. Roentgenograms showed an opaque body of about the same size in about the same position (the postero-internal part of the patella) in each instance. These points might assist a correct preoperative diagnosis on another occasion and might be thought to justify an initial antero-internal incision, through which all that is required could be done. It would be much safer, however, as such a diagnosis must always be a tentative one, to proceed in the manner customary for a loose body in the situation named. Whether an antero-internal incision should subsequently be made and the anterior part of the cartilage removed is a matter of opinion. As yet, it is too soon to know whether the fact that this step was omitted in the second case will give rise to trouble. The author prefers to do the more complete operation.

Hyperparathyroidism with Unusual Features.— Mimpriss and Butler describe the occurrence of hyperparathyroidism with a parathyroid tumor and changes in the bones in a boy of 17 in whom growth is still taking place rapidly and in whom therefore the bone changes are somewhat atypical. The unusual roentgenographic appearance of a well defined transverse band

of increased density at the metaphyses as an early bone change is probably associated with the presence of active epiphyseal growth. This metaphyseal change does not appear to have been recorded as a manifestation of hyperparathyroidism with a parathyroid tumor, although Duken has reported similar changes and published reproductions of the roentgenograms in the case of a girl aged 14, diagnosed as late rickets, which subsequently showed the changes of osteitis fibrosa. In his case the blood calcium showed a progressive rise and the plasma phosphorus was low, but at the time of reporting the case no suggestion had apparently been made of the presence of a parathyroid tumor. Another unusual feature of the authors' case is the failure of renal function with the progress of the disease, and its recovery on the removal of the tumor. This failure of renal function was not associated with the formation of renal calculi, which has frequently been recorded in hyperparathyroidism. No exact explanation of this failure can be put forward, but it is of interest to note that Hunter and Aub have reported a marked rise of the nonprotein nitrogen of the blood following the administration of large doses of parathyroid extract in human beings. The patient recovered completely after operation, in spite of his extremely precarious preoperative state. There are no permanent skeletal changes.

British Medical Journal, London

2: 1197-1240 (Dec. 30) 1933

Poliomyelitis. F. M. R. Walshe.—p. 1197.
Bearing of Recent Work on Certain Aspects of Poliomyelitis. J. P. Martin.—p. 1200.
Method of Closed Anesthesia. T. A. B. Harris.—p. 1203.
Protective Goggles for Mountaineering and Industry. J. D. M. Cardell. —p. 1205.
*Prognosis of Symptomless Glycosuria. P. J. Cammidge.—p. 1208.

Prognosis of Symptomless Glycosuria.—According to Cammidge, the more thoroughly the family history of cases of glycosuria is investigated the more evident does it become that heredity plays an important part in the etiology of the condition, and it would seem probable that the way in which the abnormality is inherited, as a familial or direct character, has some bearing on its severity and therefore on the prognosis. In a series of 800 cases of diabetes mellitus, 28 per cent were found to give an ancestral or family history of the disease, but in the present series the proportion is 38 per cent, taking the cases of classic diabetes alone, or, including the cases of symptomless glycosuria, 36.5 per cent. Considering the 420 cases of symptomless glycosuria separately, a history of glycosuria in a blood relation was obtained in 142 (33 per cent). Of the 248 who showed a hyperglycemic curve after a test meal of dextrose, 88 (35 per cent) gave a family history of glycosuria, while a positive history was obtained in 54 out of 172 (31 per cent) of those who gave a normal or subnormal blood sugar curve. A dominant or direct history was found in 126 (16 per cent) and a recessive or familial history in 171 (22 per cent) of the classic diabetic cases; but in the symptomless glycosurias there were 124 (29 per cent) dominant and only eighteen (4 per cent) recessive. Of the eighteen symptomless cases with a recessive family history fifteen were of the severe persistent type and gave a hyperglycemic curve after a test meal of dextrose. All required treatment with insulin—although not until after the lapse of some years in most instances—and two patients have died, one from malignant disease of the colon twenty-two years later, and the other from heart disease after six years' treatment. The other three gave hypoglycemic blood sugar curves with a moderate amount of urinary sugar and are now living normal lives.

1: 1-44 (Jan. 6) 1934

Food Values and Their Practical Application in Dietetics. J. A. Nixon.—p. 1.
The "Acute Ear" in General Practice. D. Guthrie.—p. 4.
*Ovulation and Menstruation. W. Shaw.—p. 7.
Contribution to Genetic Study of Mental Deficiency. L. S. Penrose. —p. 10.
Continuous Intravenous Saline. H. Bailey and J. M. Carnow.—p. 11.
Cysticercosis in Twin Brothers Aged Thirteen Years, with Radiologic Study of Calcified Cysticercus in Twelve Cases. W. K. Morrison. —p. 13.
Artificial Pneumothorax in Three Cases of Pulmonary Tuberculosis in Children. W. Stobie.—p. 14.

Ovulation and Menstruation.—Shaw attempted to observe the relation between ovulation and menstruation in women who menstruate regularly with a normal rhythm and has shown in other reports that irregular bleeding is characterized by departures from the normal relations. The time relations of ovulation and menstruation have been reinvestigated with the use of the method of identifying recently ruptured follicles in the ovaries of women who give reliable histories. It has been shown that ovulation is restricted to about the fourteenth day of the cycle. There is some variation in the time of ovulation, but the variation is probably not more than two days from the fourteenth day. A study of the condition of the corpora lutea at other stages of the cycle confirms this view. Indirect proof as to the time of ovulation can also be obtained by an examination of specimens of the endometrium of the uterus. It has been shown that the secretory phase of the endometrium develops after the fourteenth day of the cycle. The specific features of the secretory phase are never seen before the fourteenth day. Seventeen specimens of the menstruating endometrium have been examined. In all cases there was evidence of previous premenstrual hypertrophy. In the material examined, no parallel was found to the anovular cyclic bleeding of the macaque monkey.

1: 45-88 (Jan. 13) 1934

Treatment of Cardiac Cases. M. A. Cassidy.—p. 45.
The Mineral Basis of Life. J. H. Sheldon.—p. 47.
Carcinoma of Maxilla and Ethmoid: Survey of Notes of Fifty Cases. E. D. D. Davis.—p. 53.
*Laboratory Diagnosis of Enteric Infection: Remarks on Persistence of Infection. A. W. Downie and R. W. Fairbrother.—p. 55.
*Collapse Therapy in Bronchiectasis: A Warning. H. P. Nelson.—p. 58.

Laboratory Diagnosis of Typhoid Infection.—Downie and Fairbrother emphasize that, toward the end of the first week, examination of the blood by cultural methods and agglutination tests with the serum will in the majority of cases afford evidence of the nature of the disease. The evidence obtained by the agglutination test should be confirmed by isolation of the infecting organism from the feces or urine whenever possible. Later in the course of the illness, agglutination tests with the patient's serum generally give more marked reactions and, while blood cultures are less frequently positive, the isolation of the causal organism from the urine and feces is more readily effected, especially during the second and third weeks. In the detection of carriers, examination during convalescence is of the utmost importance. The carrier state may be merely temporary, the organisms being excreted for some weeks or months after the febrile period. Such cases tend to clear up spontaneously; but, in order to prevent the spread of infection from these, adequate methods of testing for freedom from infection during convalescence must be employed. At least three successive negative reports on feces and urine should be received at weekly or fortnightly intervals before a person can be considered probably free from infection. In the permanent carrier excretion of the organisms in feces or urine, sometimes intermittent, persists indefinitely, and this presents a much more difficult problem. The only satisfactory method for removing the source of infection appears to be operation.

Collapse Therapy in Bronchiectasis.—Nelson cites two cases that demonstrate the point that, when collapse therapy is applied to cases of bronchiectasis, it must be appreciated that such therapy may exclude the possibility of a subsequent lobectomy, should it become necessary. After a phrenic evulsion for a basal bronchiectasis there may be a temporary improvement, but subsequently, when the diaphragm has completely atrophied, the patients return to the same, or a worse, condition. Artificial pneumothorax frequently fails, owing to extensive pleural adhesions; but when a complete collapse is obtained the symptoms may disappear, as in the cases quoted by Chandler and referred to by Beaumont in the *British Medical Journal* of Oct. 14, 1933. Thoracoplasty for basal bronchiectasis has, on the whole, given extremely bad results and involves the sacrifice of a whole lung for a basal lesion, which is obviously wrong. But this operation still has a place in the treatment of unilateral bronchiectasis, when all the lobes are grossly affected and there is a large quantity of sputum. By means of an extensive resection it is possible to reduce the sputum in these cases from, say, 20 ounces to 1 or 2 ounces; occasionally they may even be sputum free, but in the majority it recurs again—although never, of course, to the same extent as before operation. Thus the choice of therapy in basal bronchiectasis seems to be between (1) posture and bronchoscopy and (2) lobectomy, with a mortality of 8 to 10 per cent.

East African Medical Journal, Nairobi

10: 285-316 (Jan.) 1934

High Blood Pressure. A. J. Jex-Blake.—p. 286.
Rupture of the Spleen: Case. J. A. Carman.—p. 300.

Edinburgh Medical Journal

41: 1-60 (Jan.) 1934

Scarlet Fever. G. F. Dick and Gladys H. Dick.—p. 1.
Mental Element in Crime and Criminals. R. A. Fleming.—p. 14.
*Adreno-Genital Syndrome: Illustrative Case, with Especial Reference to Its Relation to Cushing's New Pituitary Syndrome. W. E. Foggie and G. L. Montgomery.—p. 29.
Clinical Studies in Pathology of Bone. D. M. Greig.—p. 43.

Suprarenogenital Syndrome.—Foggie and Montgomery report the case of a woman of 36 who became gradually changed in both physical and mental characteristics after the birth of a stillborn child. Adiposity, hirsuties and amenorrhea with added pigmentation became evident. Further, there was a change in her voice. At first there was an overactivity of body and mind with special mental and psychosexual phenomena, but later there was a physical wasting with marked mental degeneration before complete dissolution set in. The whole process lasted two and a half years. Pathologically there was bilateral hyperplasia in the cortices of the suprarenals with some adenomatous formations. There was also advanced renal sclerosis of vascular origin. The clinical picture represented the assemblage of symptoms that directs attention to the suprarenal. Apart from the underlying cause this patient exhibited what is recognized as the corticogenital or suprarenogenital syndrome. Cook was one of the first to associate such a condition with a lesion of the suprarenal cortex, while Apert and Gallais did much to help in the elucidation of the clinical side. It is now recognized that there are various types of this condition: embryonic, with resulting hermaphroditism; early life, with precocity, exaggerated muscularity and secondary sex characteristics; puberty and after, with adiposity and secondary sex phenomena, occurring especially in women and associated with the reproductive period of life, and postmenstrual type, with less marked changes. The present case belongs to the third group and is marked by all the signs and symptoms usually associated with it. The three cardinal signs are amenorrhea or, better, sexual dystrophy, as men may be affected, hypertrichosis and adiposity. In the present case menstruation was irregular at first, but there was amenorrhea for the last six months of the patient's life. The pathologic evidence was not considered conclusive, as the suprarenal lesion did not appear to be sufficient to account for the gross changes that occurred and the case had obviously many points of resemblance with the basophilic type described by Cushing, but in the absence of a report on the hypophysis one can only leave the final diagnosis an open one. Such a case with pluriglandular suggestion would be unlikely to benefit by operative treatment directed to the suprarenal. If Cushing is right in his generalization, the logical thing would be to concentrate on the hypophysis either by operation or by roentgen therapy. In some cases of suprarenal tumors of local origin, roentgen therapy has been reported as beneficial.

Indian Medical Gazette, Calcutta

69: 1-60 (Jan.) 1934

Treatment of Typhoid Fever in Children. E. H. Vere-Hodge.—p. 1.
Etiology and Treatment of Retinal Detachment. E. O'G. Kirwan.—p. 4.
Primary Carcinoma of Gallbladder. V. Nath.—p. 7.
Nephrolithiasis of Horseshoe Kidney. P. N. Ray.—p. 9.
Postpuerperal Polyneuritis. V. Iswariah and P. Kutumbiah.—p. 13.
*Studies in Untreated Malaria. J. Lowe.—p. 16.
Conjunctivitis Produced by Ground Beetle. R. N. Chopra.—p. 23.

Untreated Malaria.—Lowe made a study of thirty-seven untreated cases of malaria due to fresh (but probably not primary) infection with Plasmodium vivax. Twenty-seven of them showed a quotidian intermittent fever. The rigors occurred usually after midday. Relapsed cases showed a tertian intermittent fever. The quotidian fever in fresh infections is found to be due to the parasites maturing in two main crops on alternate days. Most of the observations of James (1926) in experimentally induced malaria are verified in this series of cases of naturally acquired malaria. Eleven cases kept entirely without quinine showed spontaneous arrest of fever within two weeks, and in only two of these was there a relapse; these relapses subsided spontaneously. The author also observed twenty-one cases of malaria due to fresh (but probably not primary) infection with Plasmodium falciparum. In eight quinine was withheld for a time. Four of these showed a quotidian remittent fever and four showed a tertian remittent fever. The fever was not intermittent, because there was some sporulation of the parasites occurring all the time, but in addition there was sporulation of either one or two main crops of parasites about midday, causing either a tertian or a quotidian periodicity.

Journal of Anatomy, London

68: 157-288 (Jan.) 1934

Cerebral Hemispheres of Lacerta Viridis. F. Goldby.—p. 157.
Brain of Kenya Native. F. W. Vint.—p. 216.
Discontinuities in Normal Field of Vision. F. W. Lanchester.—p. 224.
Some Observations on Development of Vagina in the Pig. J. S. Baxter.—p. 239.
Rhythmic Periodicity in the Mitotic Division of Animal Cells. Alice Carleton.—p. 251.
Ileocecal Junction. R. H. Hunter.—p. 264.
Coalesced Kidneys in a Rabbit and Associated Anomalies in Circulatory and Nervous Systems. Catherine Lucas.—p. 270.

Journal of Tropical Medicine and Hygiene, London

37: 1-16 (Jan. 1) 1934

Pathologic Lesions in Natives of Central Australia (Mount Liebig Area). J. B. Cleland and J. H. Gray.—p. 1.
Human Anthrax: Its Effective Treatment with Organic Arsenic Preparations. H. A. Spencer.—p. 9.
Latent Infection of Trypanosoma Brucei in a White Rat. J. F. Corson.—p. 11.

37: 17-30 (Jan. 15) 1934

Critical Diagnosis of Infection by Trypanosoma Gambiense. A. MacPherson.—p. 17.
Testing of Treatments for Bilharzia Disease. F. G. Cawston.—p. 22.

Lancet, London

1: 1-64 (Jan. 6) 1934

The Prevention of Cancer. W. Cramer.—p. 1.
*Poisoning by Barbitone and Allied Drugs: Its Treatment by Lumbar and Cisternal Drainage. J. Purves-Stewart and W. H. Willcox.—p. 6.
*Can a Head Injury Cause Auricular Fibrillation? C. Bramwell.—p. 8.
The Mechanics of Appendicitis. B. W. Williams and R. H. Boggon.—p. 9.
The Mechanics of the Digestive Tract. A. E. Barclay.—p. 11.
Selective Action of Atebrin and Plasmoquine on Subtertian Malaria Parasite (Plasmodium Falciparum). P. H. Manson-Bahr and A. H. Walters.—p. 15.
*Diagnosis of Meningococcic Meningitis from the Spinal Fluid. B. G. Maegraith.—p. 17.
Pathologic Results of Cesarean Section. D. Lindsay.—p. 19.

Poisoning by Barbituric Acid Compounds.—Purves-Stewart and Willcox state that barbituric acid compounds after administration are excreted rapidly in the urine (with the exception of dial, much of which appears to undergo decomposition in the body). They are found in appreciable quantities in the cerebrospinal fluid. In the treatment of poisoning by barbituric acid compounds, every effort should be made to hasten elimination of the poison from the body; thus the stomach should be washed out with warm water immediately and this may be repeated at intervals of from four to six hours for two or three times. Colon lavage should be given at once and repeated every twelve hours for two or three times. Since the coma is prolonged, food should be given by stomach tube at intervals of six hours; e. g., coffee, dextrose and peptonized milk in quantities of from 15 to 20 ounces. From 15 to 20 ounces of saline solution and dextrose should be given by rectum every twelve hours. Repeated hypodermic injections of strychnine in full doses are also valuable. Lumbar or cisternal puncture and drainage are carried out at intervals of from twelve to twenty-four hours, according to the symptoms and severity of the case. The application of cerebrospinal drainage removes the poison directly from the brain, on which the main toxic effect is manifested. Rapid improvement is frequently observed after each drainage, as shown by return of the tendon reflexes and improvement in the general symptoms. Cerebrospinal drainage appears to be the only form of treatment that gives a hope of recovery when pneumonia (barbital pneumonia) has commenced.

Head Injury Causing Auricular Fibrillation.—Bramwell reports a case in which auricular fibrillation appeared to have been produced by an injury to the head in an otherwise healthy young coal miner. Though the evidence in this particular case strongly suggests that the arrhythmia was due to the trauma, the fact that such a relation has not previously been reported makes one hesitate to accept this hypothesis. The fibrillation persisted for four weeks and then promptly yielded to treatment with quinidine and has shown no tendency to recur. Although it is possible that fibrillation might be initiated by an injury to the brain, it is difficult to accept this hypothesis in view of the strong circumstantial evidence to the contrary. Jefferson states that in a series of several hundred head injuries he has never encountered auricular fibrillation as an isolated phenomenon. Nor is tachycardia a recognized sequel to such injuries, though occasionally it does occur.

Diagnosis of Meningitis from Spinal Fluid.—Maegraith remarks that the laboratory diagnosis of meningococcic meningitis from the examination of the spinal fluid can be performed in a few hours by the use of the precipitin or complement fixation tests. The causal organism can be typed by the precipitin method if strong monovalent serums are available. The growth of the isolated organism on immune serum agar plates may permit the early diagnosis of type I and III meningococci. Slide agglutination is sometimes of value in diagnosis. English monovalent serums are not satisfactory for the diagnosis of type by precipitation, and until better serums are available a combination of the polyvalent precipitin reaction and the growth of the organism on immune serum agar plates seems to be the quickest method of diagnosis of meningococcic infections from the examination of spinal fluids.

1: 65-116 (Jan. 13) 1934

Cancer of the Colon: Its Surgical Treatment. D. P. D. Wilkie.—p. 65.
Neurologic Effects of Lightning and of Electricity. M. Critchley.—p 68.
Treatment of Arthritis and Rheumatism with Gold. G. Slot and P. M. Devjlle; clinical notes by N. G. Hill, B. Williams and M. H. Fridjohn.—p. 73.
Production of Serum Inhibitory to Thyrotropic Hormone. J. B. Collip and Evelyn M. Anderson.—p. 76.
Acute Extrarenal Azotemia. M. Rachmilewitz.—p. 78.
*Complete Closure of Urinary Bladder in Cystotomy Cases. M. Whitby. —p. 81.
Chronic Cholecystitis in a Boy Aged Ten Years. W. Sheldon and H. Edwards.—p. 82.
Stricture of the Ureter. W. McKissock.—p. 83.

Complete Closure of Bladder in Suprapubic Prostatectomy.—Whitby describes a method, more especially for prostatectomy, whereby he believes that the bladder can be closed with safety at the operation. When renal function tests are poor or there is any form of infection of the bladder, drainage by a two-way catheter and continuous irrigation with 1:15,000 silver nitrate solution at 110 F. for a few days or longer is essential to the success of the operation. The reduction of the blood urea will be further assisted by an intravenous injection of 40 cc. of a 25 per cent solution of dextrose in saline solution. The two-way catheter, of a size to suit the urethra, is soaked in petrolatum and inserted into the bladder through the urethra. Continuous full irrigation is carried out for a few minutes with a solution of 1:8,000 silver nitrate at body temperature, until the bladder is clean. The bladder is allowed to fill with the same solution and the outlet and inlet of the catheter are clamped. The patient is placed in a slight Trendelenburg position. As soon as the bladder incision is made, the assistant drains the bladder through the outlet of the catheter. The prostatic cavity is viewed. Hemorrhage is dealt with by ligation of all bleeding points, and two ligatures are passed through the mucous membrane of the bladder and the sphincter, passing out through the prostatic cavity, one on each side of the midline. The edges of the cavity are trimmed and a continuous ligature is passed round the edges. At this stage, if the anesthetist gives the patient pure oxygen for a few minutes, any obvious bleeding points requiring ligation will be seen. Ordinary venous oozing can be coagulated by light diathermy for a few seconds at about 7 milliamperes with a suitable electrode. After this, a swab soaked in pure glycerin can be pressed into the cavity for a few moments, which will check exudation. The bladder is completely closed and then irrigated, until the return fluid is clear, with hot silver nitrate solution of 1:5,000 through the two-way catheter, which is arranged so that the two terminal eyelets lie in the bladder cavity and the other eyelet in the prostatic cavity. Some of the solution is left in the bladder and the catheter is clamped until the patient returns to the ward, where continuous irrigation is instituted with a thermoflask retainer. The catheter is held in position by a collodion dressing round the entire penis, and this dressing should not require to be removed until the catheter is ready for removal. The projecting portion of the catheter should be cleansed with an antiseptic daily. Pain and sleeplessness should be relieved by means other than morphine. The head of the bed should be raised on blocks. Injection of 40 cc. of a 25 per cent solution of dextrose in saline solution is given intravenously and repeated every six hours if necessary. Drainage should be inspected every half hour to see that it is effective and that the bladder is not filling too quickly. The rate of flow should be about 8 cc. a minute. The catheter should be removed on the tenth day and reinserted only if the patient does not pass urine satisfactorily. A medium sized bougie should always be passed later to prevent postoperative stricture.

Practitioner, London

132: 1-128 (Jan.) 1934

History of Dietetics. R. Hutchison.—p. 1.
Vitamins in Clinical Medicine. S. J. Cowell.—p. 15.
Adequate Diets in Diabetes Mellitus: A New Approach. J. A. Nixon. —p. 25.
Diet in Treatment of Infections of Urinary Tract. A. L. Clark.—p. 34.
Therapeutic Use of Ketogenic Diet. H. Gainsborough.—p. 45.
Some Considerations of Dietary Treatment of Obesity. E. C. Dodds. —p. 54.
Diet in Rheumatic Disease. A. H. Douthwaite.—p. 65.
Diet and Disease in Childhood. A. Moncrieff.—p. 72.
Diet in Diseases of the Colon. S. W. Patterson.—p. 82.
*Diet and Endocrine Deficiency. H. Gardiner-Hill.—p. 92.
Diet in Treatment of Lupus. J. Dundas-Grant.—p. 101.
Medicolegal Problems in General Practice: I. Medicolegal Responsibility of the General Practitioner. W. Willcox.—p. 109.

Diet and Endocrine Deficiency.—Gardiner-Hill believes that a close relationship exists between dietetic problems and endocrine deficiency. This is well illustrated by observations on iodine in simple goiter, and vitamin A deficiency in lymphadenoid goiter. Calcium supplies, vitamin D and parathyroid extract are intimately associated in the metabolism of calcium, while insulin is the controlling factor in carbohydrate metabolism. In some instances, obesity and cachexia are due to endocrine deficiency, though the part played by diet in these conditions is at least equally important. As regards general principles of treatment of the series of conditions under consideration, the essentials seem to be replacement of the defective glandular secretion, with reorganization of the metabolic disturbance by appropriate dietetic measures.

South African Medical Journal, Cape Town

8: 1-40 (Jan. 13) 1934

Diet in Relation to Health in South Africa: Biochemical Aspect. F. W. Fox.—p. 3.
Diet in Health in South Africa. L. I. Braun.—p. 15.
Diet in Relation to Public Health in South Africa. E. H. Cluver. —p. 19.

Japanese Journal of Gastroenterology, Kyoto

5: 115-162 (Dec.) 1933

Significance of Liver in the Metabolism of Lipoid Bodies: I. Change in Amounts of Lipoid Bodies in the Blood and Bile in Parenteral Administration of Lecithin to Normal Rabbits. Y. Asoda.—p. 115.
Id.: II. Metabolism of Lipoid Bodies in Hepatic Disturbance in Rabbits. Y. Asoda.—p. 124.

Journal of Oriental Medicine, South Manchuria

19: 75-86 (Dec.) 1933

Dietetic Therapy of Gallstone. S. Saiki.—p. 75.
Biochemical Study on Nitril Compound: II. Behavior of Sulphur Against Formation of Rhodan. C. Tsuru.—p. 80.
Hydrogen Ion Concentration of Histiocyte by Vital Staining with Indicator Dyes: Part II. S. Hatano and S. Iwata.—p. 81.
Statistical Observations of Dysenteric Patients in Mukden. T. Kako and Y. Hisamochi.—p. 82.
Agglutinin Production After Intradermal and Subcutaneous Injections. M. Yato.—p. 84.
Natural Increase of Japanese in Manchuria. U. Miura and S. Kawahito.—p. 85.
Digestibility of Chief Food Products of Manchuria in Relation to Nutrition of Japanese Farmers. A. Abe, U. Takei, O. Ueno, M. Ebihara and A. Yokota.—p. 86.

Presse Médicale, Paris

42: 265-288 (Feb. 17) 1934

Rocky Mountain Spotted Fever Observed in Paris: Case. A. Lemierre. —p. 265.
*Chronology and Phenomenology of Morbid Alterations in Black Cardiacs of Ayerza: Fundamental and Accessory Lesions. M. R. Castex and E. L. Capdehourat.—p. 268.
Unity or Plurality of Internal Leishmaniosis. P. Giraud.—p. 272.
Arrest of Active Varicose Phlebitis by Sclerosing Injections. G. Delater and M. Chailly.—p. 274.

Ayerza's Disease.—Castex and Capdehourat believe that the morbid alterations in Ayerza's disease can be divided into fundamental and accessory lesions. They consider as the fundamental ones all the chronic changes of the respiratory apparatus resulting from long continued bronchitis with or without peribronchial sclerosis and bronchiectasis, loss of elasticity and pulmonary fibrosclerosis, and chronic emphysema. The accessory lesions are those which do not enter actively into the development of the disease. Long continued bronchitis is, then, the prime factor in the development of the disease. Sclerosis of the pulmonary artery may or may not be present. Sclerotic lesions of the vessels of the lesser circulation, however, play an important part in increasing the work of the heart. Persons in whom the hematopoietic system is incapable of reacting to the chronic bronchopulmonic process and anoxemia cannot develop the clinical picture of Ayerza's disease. This explains why the disease usually begins in youth, is less frequently seen in adult life, and is rarely encountered in old age. It is also the reason why, in spite of the frequency of the occurrence of chronic bronchopneumonic processes in old age, the pathologic picture of Ayerza's disease is so rarely seen.

Pediatria, Naples

42: 225-344 (March 1) 1934

Importance of Diagnostic Help in Pediatric Clinic. L. Auricchio.—p. 225.
*Hemato-Encephalic Barrier in Nursling. B. Pincherle and G. Salom. —p. 239.
Contribution to Study of Involvement of Heart in Scarlet Fever with Particular Attention to Myocardium. W. Schwarz.—p. 267.
Iodine Therapy in Lymphatism. G. Marcelli.—p. 284.
Postdiphtheric Hemiplegia and Consecutive Bulbar Paralysis. A. Celentano.—p. 290.
White Angina Due to Streptococcus. L. Bubani.—p. 295.

Hemato-Encephalic Barrier in Nursling.—Pincherle and Salom review the total literature on the blood-cerebrospinal fluid barrier, with especial reference to its function in early infancy. The authors have studied the permeability of the barrier to acid fuchsin in fifty-six infants not older than 13 months. They found that permeability was present in all cases in the first three months of life; it decreased during the next six months, until at the end of the first year the barrier acts as in adults. The authors maintain that the increased physiologic permeability of the barrier is probably due to immaturity of the anatomic elements at birth. They think that this permeability does not produce the tendency of infants to convulsions and to meningitis but that it may be one of the causes of alteration of the cerebrospinal fluid in congenital syphilis and of cerebral complications in intestinal intoxication.

Anales de la Soc. Med.-Quir. del Guayas, Guayaquil

13: 783-816 (Sept.) 1933

Hemoglobinuric Fever. J. A. O'Daly and G. de la Plaza.—p. 785.
Technic for Operation of Pterygium to Avoid Its Recurrence. J. F. Rubio.—p. 799.
*Painful Spot in Shoulder in Acute Malaria. A. Pareja Coronel.—p. 805.

Painful Spot in Shoulder in Acute Malaria.—Pareja Coronel states that the presence of a painful spot in front of the scalenus muscle, corresponding to the area of the right phrenic nerve, is a diagnostic sign of acute malaria. The pain may coexist (although with less frequency and less intensity) in the left shoulder. In the blood of patients having this sign, Plasmodium praecox is usually found. The sign is characteristic of the first acute malarial infection. Patients with chronic or recurrent malaria do not present it. The author believes that the pain is a reflex manifestation of the hepatosplenic syndrome of acute malaria. Fifteen cases of acute malaria in which the sign was observed are reported.

Beiträge zur klinischen Chirurgie, Berlin

159: 111-222 (Feb. 14) 1934

Operative Treatment of Urethral Tears. J. Planz.—p. 111.
Severe Injuries in Skiing. H. J. von Brandis.—p. 117.
Treatment of Vascular and Lymph Vessel Tumors. G. Gerlach.—p. 129.
Cholecystogastric Fistula Following Perforation by Stone. K. Pohlandt. —p. 138.
Healing of Severe Unreduced Fracture Dislocation of Thoracic Vertebrae. H. Hanke.—p. 148.
*Intussusception and Intra-Abdominal Pressure in Childhood. W. Obadalek.—p. 160.
Aid to Roentgen Study of Cervical and Upper Thoracic Vertebrae. T. Bársony and E. Koppenstein.—p. 170.
Injuries Caused by Passage of Sounds into Rectum. W. Dick.—p. 174.

Intussusception and Intra-Abdominal Pressure in Childhood.—Obadalek believes that sudden increase in the intra-abdominal pressure is in many instances the determining factor in intussusception of children. He reports a case in a girl who suffered from colicky pains about the navel for some time and in whom severe symptoms of invagination followed immediately a fit of severe paroxysmal cough. In a second case, symptoms of invagination followed straining at stool. At operation in this case there were found polyps in the small intestine. In both cases local spasms were present but appeared in themselves insufficient to cause intussusception. This was precipitated by a sudden increase in the intra-abdominal pressure. A local spasm of the intestine causes pain, which provokes in a child a fit of crying, which in its turn increases the intra-abdominal pressure. The latter may be of accidental nature, resulting from straining at stool, coughing or trauma. The author explains his failure to produce experimental invagination in animals by the absence in them of the factor of considerable intra-abdominal pressure. The peculiar predilection to invagination, so far as the age, the sex and the state of muscular development are concerned, is best explained by the part played by the intra-abdominal pressure.

Dermatologische Wochenschrift, Leipzig

98: 229-256 (Feb. 24) 1934

*Therapeutic Experiments with Living Spirochetes in Cases of Early Syphilis. E. Neuber.—p. 229.
*Etiology and General Treatment of Acne Vulgaris. D. von Kémeri. —p. 237.
Ventricular Ulcers in Patients with Leprosy. A. Paldrock.—p. 241.

Spirochete Vaccine in Treatment of Syphilis.—That the immunotherapy has been given so little attention Neuber ascribes to two factors: (1) the difficulties encountered in the culture of Spirochaeta pallida and (2) the progress in chemotherapy. The first factor has been overcome by Hilgermann who, after years of effort, has succeeded in finding a way to put Spirochaeta pallida through several passages, reduce its pathogenicity and even produce avirulent spirochetes that are suitable for active immunization. In the author's clinic, 215 syphilitic patients were treated with Hilgermann's spirochete vaccine. Forty-two were treated in the beginning only with the vaccine (three times with intervals of two weeks), but in the further course the vaccinations were combined with injections of bismuth compounds and neoarsphenamine. In the other 173 patients the specific and chemotherapeutic treatments were combined from the beginning. The total number of vaccinations varied in different cases between one and ten, the majority of patients receiving three or four. The initial dose was generally 1 or 1.5 cc., and this amount was gradually reduced to 0.1 cc. and less. As a rule, the administration of the vaccine was done subcutaneously (upper arm), rarely intramuscularly, and only a few times intracutaneously. The reactions following the injections of vaccine usually became slighter after the later injections. Severe focal reactions were noted in fifty-six out of the 215 patients. General reactions were noted particularly after the larger doses of vaccine. The author reaches the conclusion that the treatment with spirochete vaccine influences the immunobiologic apparatus of the organism, but he thinks that in early syphilis it is not sufficient to free the organism from the spirochetes. He relates the results obtained with the vaccine in ninety-six cases of neurosyphilis. A comparison of the results in these cases with those obtained with malariotherapy or with recurrent fever therapy reveals that the vaccinations with spirochetes were superior in regard to complete remissions,

but inferior in regard to slighter improvements. The mortality rate was higher after treatment with the spirochetal vaccine, but this may be due to the fact that more of these patients were in an extremely weak and marantic condition. The number of progressive cases was larger after treatment with spirochetal vaccine than after malariotherapy, but only about half as large as after treatment with recurrent fever.

Etiology and Treatment of Acne Vulgaris.—In fifty-two patients with acne vulgaris, von Kémeri observed pyogenic foci, positive Pirquet reactions and pulmonary changes. Following removal of the pyogenic foci, the cutaneous changes disappeared spontaneously in twenty-two patients and in the others the pyogenic character suffered a surprising change. Thirty patients were subjected to tuberculin treatment following removal of the foci. The result was that twenty-seven were completely cured and two considerably improved, while one showed an exacerbation of the cutaneous symptoms. Other favorable effects noted in connection with the treatment were improvement of the appetite, increase in weight and cessation of gastro-intestinal and menstrual disturbances. The author considers acne vulgaris a symptom of a combined tuberculous and pyogenic focal infection. He ascribes the chronicity of the disorder to the tuberculosis and the acute pyogenic eruptions to the internal pyogenic focus. The activity of the pulmonary foci is proved by auscultation, percussion and, eventually, roentgenoscopy, but cutaneous symptoms likewise may indicate it.

Deutsche medizinische Wochenschrift, Leipzig

60: 271-308 (Feb. 23) 1934

Problem of "Old Trouble" in Individual Sick Insurance. R. Schoen.—p. 271.
Gastritis. H. Kalk.—p. 276.
Schüller's Syndrome. F. von Doleschall and L. von Udvardy.—p. 281.
*Cure of Botulism by Means of Serum. G.-D. Koehler.—p 283
*Complement Fixation Reaction in Gonorrhea. H. Säuferlin.—p. 285.
Operative Cure of Cerebral Abscesses. J. Pogačnik.—p. 287.
Conservative Treatment of Lithiases. A. Durand.—p. 288.
Devices for Performing Intravenous Injection. H. Mappes.—p. 289.
Sutureless Union of Cutaneous Wounds. E. Dujardin.—p. 289.

Cure of Botulism by Means of Antitoxin.—Koehler relates the histories of two unusually severe cases of botulism, in which the first disease symptoms, disturbances of accommodation, were noticeable nine days before admission to the clinic. Both patients had been unable to sleep during eight nights. The oculomotor nerve was severely affected, particularly in the older patient. The vagus was involved as far as it innervates the pharynx, the larynx and the gastro-intestinal tract, and the impairment of the muscles active in deglutition indicates involvement of the glossopharyngeal nerve. That important centers of the spinal cord were impaired was indicated by the cessation of salivation and of secretion of sweat, by ptosis in the smooth portion of the superior palpebral levator, by vesical disturbances, and by the temporary absence of the cremasteric and the abdominal reflexes. The sensomotor paresis of the left side of the body (in the girl) indicated a unilateral involvement of the right cerebral cortex with its central convolutions. The two cases are noteworthy particularly because of the favorable and rapid action of botulism antitoxin. The action of the antitoxin serum was especially prompt in the girl, in whom 100 cc., half of it intravenously and half intramuscularly, was given at the first administration. Considerable improvement could be noted after half an hour, for the left side of the body and the vision in the left eye improved and a beneficial warm sweat covered the body. The patient was again able to sleep, and on the following day she could swallow solid food. An additional 50 cc. of the antitoxin serum was given by intramuscular injection on the subsequent day, and as a result the function of the bowel became normal. Three weeks later the girl had completely recovered. The author deplores that in the older patient, the man, the initial dose of serum had not been sufficiently large, for only 25 cc. was given intravenously. He thinks that the cardiac complications could perhaps have been avoided if a larger dose had been given at once. This patient received in all 275 cc. in the course of four days. After four weeks the patient was discharged completely cured, except for a slight weakness in accommodation.

Complement Fixation Reaction in Gonorrhea.—Säuferlin investigated whether the complement fixation reaction of gonorrhea can be made more sensitive by means of the quantitative evaluation combined with three different readings. The fact that in syphilis the evaluation with graduated amounts of serum may indicate slight inhibitions that are not perceptible with the original method induced the author to investigate whether the percentage of positive complement fixation reactions in gonorrhea can be increased by the same method. The evaluation upward is done in the usual manner with 0.3 cc. and 0.5 cc. of serum. The differentiated readings are taken: the first after the dilution of the normal blood, the second twenty minutes later and the third after two hours. The author employed this method with 150 serums. He concludes that, in regard to diagnostic sensitivity, the quantitative evaluation is superior to the original method.

Klinische Wochenschrift, Berlin

13: 241-280 (Feb. 17) 1934

Susceptibility of Blood Pressure Centers to Stimuli and Experimental Production of Hypertension of Central Origin. H. Heller.—p. 241.
Diagnostic Utilization of Roentgen Kymography. W. Menzel.—p. 245.
Relationship of Pathogenic Hereditary Units to Clinically Defined Types of Hereditary Disorders. F. Lenz.—p. 249.
*Diagnosis on Dried Cerebrospinal Fluid. N. Henning and A. Beck.—p. 251.
Chloride Secretion of Stomach. R. Jürgens.—p. 253.
Problem of Silver Pigmentation of Kayser-Fleischer's Corneal Ring. B. Fleischer and W. Gerlach.—p. 255.
Investigations on Kaolin Hypertension. F. Högler, K. Überrack, F Zell and W. Falta.—p. 255.
Serology of Tuberculosis. E. Meinicke.—p. 258.
Conglobation Reaction in Tuberculosis. F. E. Haag and Ellen Niggemeyer.—p. 260.
*Treatment of Syphilis in Man and Animals by Means of Antimony Derivatives. J. L. Kritschewski, M. A. Wein and A. I. Pines.—p. 261.
Behavior of Alkali Reserve in Exophthalmic Goiter. E. Pulay.—p. 264.
Influence of Suprarenals on Function of Muscle, Particularly Its Metabolism. G. Kuschinsky and D. Nachmansohn.—p. 265.
Influence of Pineal Extracts on Action of Hormones of Anterior Hypophysis. P. Engel.—p. 266.

Diagnosis on Dried Cerebrospinal Fluid.—The technic of the examination of the dried drop of cerebrospinal fluid, which Henning and Beck employ, is simple. After all formed elements have been removed from the fluid by means of filtration and centrifugation, a drop is put on a slide and is left to dry in an even temperature (incubator). Normal cerebrospinal fluid presents to the naked eye a fairly homogeneous, gray veil. Microscopy reveals peculiar sodium chloride skeletons, the configuration of which is characteristic for cerebrospinal fluid. Most typical is a cross figure formed by two beams that meet at an angle of approximately 90 degrees. The cross beams are rather plump and frequently oval, the point of the egg being directed toward the center. The outlines are either smooth or serrated. Sometimes the beams are almost square, so that the interstices are filled out. The size of the crosses varies according to their location in the circular preparation. In addition to these relatively large, plump and elevated formations there are also regularly rather delicate forms of plantlike appearance. The dry preparations of the normal fluid show no marginal zones, for the crystallization products begin immediately at the periphery. Since the preparations are hygroscopic, they should be kept in closed containers with calcium chloride. The authors also examined pathologic specimens of cerebrospinal fluid and found that a slight increase in the protein content becomes manifest in a peripheral ring zone. The protein nature of this zone was demonstrated. The width of the ring zone goes parallel with the protein content. The widening of the marginal zone is accompanied by changes in the morphology of the crystallization figures. As the width of the marginal zone increases, the cross figures become rarer and smaller, the more delicate formations predominate and the background becomes more dense. The authors give photomicrographs of the normal fluid and also of several pathologic specimens.

Antimony Derivative in Treatment of Syphilis.—Kritschewski and his associates relate their studies on the antisyphilitic action of antimony preparation in animals and human subjects. They found that the preparation destroyed the spirochetes not only in rabbits but also in mice and in human beings. The preparation sterilized the central nervous system of syphilitic mice. In human subjects the antisyphilitic action of the

antimony preparation was not inferior but rather superior to that of bismuth compounds. The authors conclude that antimony preparations deserve a place in the combination therapy of human syphilis.

Medizinische Klinik, Berlin

30: 217-252 (Feb. 16) 1934

Hereditary Factors in Personality. W. Enke.—p. 217.
Observations in Examination of Medicaments. H. Steudel.—p. 220.
*Observations on Sodium Chloride Exchange in Amyloid Kidney. W. Nonnenbruch.—p. 223.
Observations on Sporadic Cases of Weil's Disease. E. Zimmermann.—p. 224.
Unification of Dosage in Combined Roentgen and Radium Treatment. T. C. Neeff.—p. 226.
Action of Antigonorrheal Preparation on Deeper Tissues. A. Perutz and G. Halpern.—p. 228.
*Magnesium Chloride Test: New Reaction for Serum Proteins. R. Bauer.—p. 230.
New Reliable Micromethod for Determination of Sedimentation of Erythrocytes According to Raskin. H. Reichel.—p. 233.
Dietary Treatment in Gynecology and Obstetrics. A. Bauer.—p. 234.

Sodium Chloride Exchange in Amyloid Kidney.—Nonnenbruch noted in healthy persons that a dry diet with high sodium chloride content is one of the strongest diuretics. He decided to try this diet on patients with hydropic nephrosis or with amyloid kidneys, in order to discover whether the sodium chloride would exert its diuretic action and produce an increase in the sodium chloride content of the urine. In one patient, in whom the specific gravity of the scant urine did not exceed 1.020, the sodium chloride values of the urine remained below the blood values and there was hardly any diuresis. In another case, however, diuresis and sodium chloride concentration resulted. This patient had a chronic suppurative pulmonary process, bronchiectasis, empyema and amyloidosis. Death occurred eight months later and the necropsy revealed the presence of amyloid in the internal organs. The author wished to illustrate in this case that even in case of edema with oliguria and with low sodium chloride concentration of the urine in the course of an amyloid nephrosis it is possible to produce the strong diuretic action of the sodium chloride with simultaneously decreased fluid intake, provided the kidney is capable of reacting to the sodium chloride. If hypochloremia exists, the administration of sodium chloride is advisable even though renal disease is present. This rule is followed in case of poisoning with corrosive mercuric chloride and also in true uremias in chronic renal diseases. In these cases the vomiting is often promptly checked by the intravenous administration of sodium chloride.

Magnesium Chloride Test: Reaction for Serum Proteins.—Bauer describes a test for the determination of the protein quotient in the serum, which is based on the investigations of Pauli, Neuberg and Willheim, who proved that heat flocculation of protein solutions can be prevented by the addition of saturated solutions of hydrotropic salts. After many preliminary tests the author found that the use of an exactly one-third saturated solution of magnesium chloride (15.68 per cent), which is prepared by titration with silver solution, is the most suitable for this purpose. A dilution series of serum and physiologic solution of sodium chloride is set up in six tubes, the first containing 1 cc. of a 1:2 serum solution. To the 1 cc. of serum solution in each tube, 1 cc. of the solution of magnesium chloride is added. The tubes are heated for fifteen minutes in the boiling water bath. Under normal conditions, flocculation takes place only in the first two tubes, but if the globulin is increased, it takes place also in the third and the following tubes. As a rule, flocculation is noted only if the globulin content exceeds 40 per cent, but, if the euglobulin factor predominates, flocculation may set in when the total globulin amounts to only 30 per cent. The author made tests on 652 serums and his observations convinced him that the test is always negative in normal persons and also in the majority of patients. The eighty-five persons (13 per cent) in whom the test was positive had various disorders, some having hepatic diseases and others pernicious anemia. The third group, in whom it was positive, had tuberculosis, but only seventeen of sixty-nine gave the positive reaction. Of thirty-five patients with a positive Wassermann reaction, twenty-five gave a negative magnesium chloride test. Patients with carcinoma also gave mostly negative reactions, but out of twenty four were strongly positive and two weakly positive. The sixth group in which the test was found positive embraced patients with diverse disorders, such as poisoning with barbital, hernia, tonsillar abscess, facial paresis and pneumonia; positive results were seen also after milk injection, after injections of tetanus serum and during malariotherapy. The author thinks that in diseases of the liver and in pernicious anemia the test has a certain diagnostic value.

Wiener Archiv für innere Medizin, Vienna

24: 321-480 (Feb. 10) 1934

*Significance of Weltmann's Coagulation Band for Diagnosis of Hepatic Diseases. O. Weltmann and B. Sieder.—p. 321.
Clinical Diagnosis of Compression of Left Auricle: Symptomatology of Bronchial Carcinomas. H. Kahler.—p. 363.
*Difference in Blood Pressure in Upper and Lower Extremities. A. Edelmann and A. Kahan.—p. 377.
*Acute Cardiac Pulmonary Edema and Its Reflex Mechanism. S. Wassermann.—p. 387.
Noteworthy Concurrence of Uratic Arthritis, Vaquez's Erythremia and Malignant Hypernephroma. C. V. Medvei.—p. 417.
Clinical Observations in Lymphogranulomatosis. A. Herz.—p. 427.
Insulin Action on Acetone Bodies. A. Löw and A. Krčma.—p. 455.
Fate of Resorbed Carbohydrates in Organism. H. Schur, A. Löw and A. Krčma.—p. 463.

Coagulation Test in Diagnosis of Hepatic Diseases.—Weltmann and Sieder made the coagulation test on patients with liver disease. The width of the so-called band is expressed in the number of tubes that show coagulation. Since in the series of ten tubes the critical zone often lies between the seventh and eighth tube, and additional tube is intercalated here (7½). On the basis of observations in hepatic disorders, the authors conclude that the coagulation test is helpful in the diagnosis of liver diseases. The behavior of the coagulation band in simple icterus and in acute yellow atrophy of the liver indicates that parenchymal damage of the liver produces changes in the serum protein. The extreme width of the coagulation band in acute yellow atrophy of the liver, which exceeds that of simple icterus, indicates that the width of the coagulation band is largely determined by the intensity of the impairment of the liver cells. In cirrhoses of the liver a widening of the band is likewise an almost constant occurrence. However, in these cases a connection between the greater width of the band and the degree of parenchymal damage is not so unequivocal, since here a second factor is involved; namely, the fibrous tendency. In this connection, the authors call attention to their experiences with the coagulation test in tuberculosis, in which they found that the coagulation band was narrowed in the exudative forms, while it was widened in fibrous processes. The primary parenchymal diseases of the liver are the ones in which the coagulation band is particularly valuable. In these the coagulation reaction is more sensitive than the galactose test but somewhat less sensitive than urobilinuria. A disadvantage of the coagulation test lies in the fact that the nongenuine, secondary alterations of the parenchyma, such as may be observed after prolonged biliary engorgement and in extensive destruction of the liver tissue by carcinoma, may also lead to a widening of the band. The identical outcome of the galactose and of the coagulation tests, whether positive or negative, is an unequivocal indication of the presence or absence of parenchymal impairment. However, a divergence between the two, negative galactose test and wider coagulation band, may be interpreted in various ways. It is possible that parenchymal impairment exists, in which the galactose test fails; or there may be a biliary stasis that secondarily leads to functional damage of the liver. A positive galactose test with no widening of the galactose band is rare, but if it occurs it indicates an impairment of the liver cells accompanied by an exudative inflammatory process.

Blood Pressure in Upper and Lower Extremities.—Edelmann and Kahan point out that Hill first studied the causes of the difference in the blood pressure between the upper and lower extremities in aortic insufficiency. Even in normal persons, differences in pressure exist between the arms and legs, the systolic pressure in the latter exceeding that in the arms by from 10 to 14 mm. of mercury. However, in aortic insufficiency, Hill found differences of from 50 to 100 mm. of mercury. Several other investigators have corroborated Hill's

observations, but there is still disagreement as to the causes of this phenomenon. The authors show that the stenosis of the aortic isthmus throws light on the mechanism of the pressure difference. They show that the difference between the blood pressure in the upper and lower extremities is dependent on the obstacles that the blood stream encounters on its way. Of especial significance is the right-angled branching off of the artery of the arm. Moreover, syphilitic changes of the aorta, causing distortion and stenosis at the site where the artery of the arm branches off, lead to differences in the blood pressure by increasing the resistance. Hill's symptom has practical significance in that it indicates a syphilitic lesion at the beginning portion of the aorta; but arteriosclerotic changes of the smaller vessels, such as the subclavian, brachial, femoral and popliteal arteries, which cause a narrowing of the lumens, likewise may lead to differences in the pressure.

Acute Cardiac Pulmonary Edema and Its Reflex Mechanism.—Wassermann shows that acute cardiac pulmonary edema presents in certain cases a reflex syndrome of the cardiac pulmonary sympathetic nervous system with radiations into other regions. It can be improved or entirely suppressed by pressure on the carotid sinus. The attack of pulmonary edema generally occurs spontaneously with cardiac acceleration, increase of the blood pressure and symptoms of irritation of the sympathetic. The objective symptoms are dyspnea, moist râles and serohemorrhagic sputum. The author thinks that the condition is produced by a cardiac-central pulmonary reflex in the region of the pulmonary capillaries (spasm) with exudation of serum into the alveoli. At the height of the attack there is danger of primary respiratory death or of secondary heart failure. Pressure on the carotid sinus presents a complex counter reflex. The spontaneous attack of pulmonary edema is not an exclusive nocturnal phenomenon but occurs almost as frequently diurnally. Frequent diurnal attacks of "asthma" should be carefully investigated in order to determine whether they are not atypical forms of pulmonary edema. During the attack the following measures may be taken: compression of the carotid sinus, quieting of the central apparatus of the respiration, and deviation of the reflex by hot hand and foot baths or hot fomentations on the precordial region and by administration of spasmolytic remedies. Helpful supplementary measures are oxygen inhalation, venesection and, in case of cardiac insufficiency, digitalis. If the asphyxia increases, restoratives may be given, or remedies that stimulate the respiratory center. During the interval, the irritability should be reduced by the use of sedatives. The water exchange should be regulated by limiting the fluid intake. The cardiac insufficiency and the coronary circulation should be improved by chronic intermittent digitalization. This would reduce the coronary irritability, effect a better blood perfusion of the nervous centers and thereby reduce the predisposition to attacks.

Zeitschrift f. Geburtshülfe u. Gynäkologie, Stuttgart

107: 165-280 (Feb. 9) 1934

Studies on Ovaries of Macaques. G. Frommolt.—p. 165.
Pulmonary Ventilation and Respiration During Pregnancy: Pulmonary Volume After Cessation of Lactation. A. Metzler.—p. 178.
Id.: Pulmonary Ventilation. A. J. Anthony and R. Hansen.—p. 186.
Id.: Character of Respiration. A. J. Anthony and R. Hansen.—p. 195.
Id.: Distribution of Respiratory Air in Lung. A. J. Anthony and R. Hansen.—p. 199.
Present Status of Inflammatory Genital Hemorrhages and Their Treatment. E. Hoevelmann.—p. 203.
*Trichomonas Problem and Remarks on "Nonspecific" Leukorrhea. M. Rodecurt.—p. 217.
*Clinical Aspect of Cystic Mole and of Chorio-Epithelioma. E. W. Winter.—p. 243.
Facial and Frontal Presentations Caused by Umbilical Cord Surrounding Neck of Fetus. G. Steinitz.—p. 255.

The Trichomonas Problem.—Rodecurt evaluates the various staining methods of trichomonads. The demonstration by means of stains is not superior to the fresh preparation. For practical purposes the fresh preparation is the best. The author describes his experiences with trichomonas cultures. He produced pure cultures of trichomonads and observed that they survived several freezing processes and drying. He succeeded in producing trichomonas vaginitis by introducing the trichomonads from a pure culture. He discusses the biology of trichomonads. Eighty-eight per cent of his leukorrhea cases were caused by trichomonads. He evaluates various therapeutic measures and shows that besides the local ones those that aim at a general improvement (calcium, iron, viosterol and so on) should not be overlooked.

Cystic Mole and Chorio-Epithelioma.—In 8,000 deliveries Winter observed twenty cases of cystic mole and three cases of chorio-epithelioma. Expulsion of the mole always took place between the second and seventh month of pregnancy and retention was never observed. He states that the discharge of the characteristic cysts is the most reliable basis for the diagnosis of cystic mole, but this proof is relatively rare. Excessive size of the uterus is a further sign, but this is not always present. A peculiar consistency of the uterus, namely, a softness and yet a sort of tight elasticity that gives the impression of a cyst, is a characteristic aspect of cystic mole. Hemorrhages and the impossibility of demonstrating a fetus are also symptoms that may indicate a cystic mole. Some authors have observed toxicosis of pregnancy in women with cystic mole, but the author maintains that eclampsia as well as severe nephropathy are rare concomitants, although hyperemesis is somewhat more frequent. He considers the occurrence in the urine of an excessive amount of the hormone of the anterior hypophysis the most important symptom. Another sign he observed in nearly all cases is excessive mammary secretion. The treatment should aim at removal of the growth. Evacuation of the uterus is usually spontaneous, but occasionally the discharge has to be assisted by the administration of ecbolics. However, after the cystic mole has been expelled the patient cannot be considered completely cured, for now begins the prophylaxis of chorio-epithelioma. The causal connection between cystic mole and chorio-epithelioma is not completely understood, but chorio-epithelioma is frequently preceded by a cystic mole and both disorders are accompanied by hormonic disturbances. Of the three cases of chorio-epithelioma observed by the author, one developed following a cystic mole and two developed after delivery. He emphasizes that, if hemorrhages develop shortly after a delivery, not only the possibility of a placentar polyp should be considered but also the existence of a chorio-epithelioma. Women who have had a cystic mole should be kept under observation; that is, the urine should be examined from time to time for its hormone content. If the hormone test remains positive for longer periods, the woman should be examined.

Zentralblatt für Gynäkologie, Leipzig

58: 433-480 (Feb. 24) 1934

*Gas Gangrene Bacilli in Vaginal Secretion. J. von Khreninger-Guggenberger.—p. 434.
Simultaneous Occurrence of Coiling and True Knotting of Umbilical Cord. S. von Wachenfeldt.—p. 438.
Function of Stomach During Normal and Pathologic Pregnancy. E. W. Winter.—p. 443.
Evipan (Sodium Salt of a Barbituric Acid Derivative) in Gynecologic Clinic and in Private Practice. F. Meder.—p. 447.

Gas Gangrene Bacilli in Vaginal Secretion.—Von Khreninger-Guggenberger examined the vaginal secretions of twenty pregnant women, two puerperal women and seventy-five nonpregnant women. By means of cotton swabs he secures secretion from the posterior vaginal vault. The swabs are placed in a liver-liver broth (liver broth containing pieces of the organ). In this medium the gas gangrene bacilli develop faster than any other, gas formation being noticeable after a few hours. As soon as gas formation is noted, the fluid culture is transferred to Zeissler's blood plates. These blood plates are then placed in the incubator for anaerobes. Then, in order to determine the pathogenicity for animals, a twenty-four hour bouillon culture is prepared from the pure culture and 0.5 cc. of this is injected into the pectoral muscle of guinea-pigs. If the reaction is positive, a typical gas gangrene phlegmon appears and most of the animals die within twenty-four hours, while others survive but show necrosis formation. The tests revealed that in approximately one third of the pregnant women the upper portion of the vagina contained gas gangrene bacilli. One of the two puerperal women and eight of the seventy-five nonpregnant women had gas gangrene bacilli in the vaginal secretion. The author shows that the pathogenic microorganisms of the vagina are kept in check by the vaginal secretion, but a dilution of this secretion removes the growth-

inhibiting power. He maintains that the growth-inhibiting power of the vaginal secretion decreases as the duration of the delivery is prolonged and, if delivery lasts too long, sepsis sets in. For this reason he advises that prolonged birth should be accelerated by the administration of hormones, or, if complications may be expected, operative measures should be taken early enough, for the earlier the intervention, the better the results.

Vrachebnoe Delo, Kharkov

16: 749-812 (No. 11) 1933. Partial Index

*Liver Function Determination in Prevention of Neoarsphenamine Complications. L. M. Markus and B. B. Geft.—p. 749.
*Functional Capacity of Stomach in Pulmonary Tuberculosis. I. I. Moshkovskiy.—p. 755.
Gastroduodenal Ulcer Associated with Biliary Tract Disease. B. A. Krivoglaz.—p. 763.
Clinical Evaluation of Retrograde Pyelography as Diagnostic Method in Renal Tuberculosis. D. O. Altshteyn.—p. 771.

Liver Function Determination in Prevention of Neoarsphenamine Complications.—Markus and Geft consider that the more functional the tests the more accurate will be the determination of the liver function as regards not only the icterus but also the complications due to neoarsphenamine in a broader sense. The following factors play an important part in the pathogenesis of secondary effects of neoarsphenamine, particularly of icterus after neoarsphenamine: 1. Latent infections (streptococci, paratyphoid, Bacillus subtilis and so on). Here the neoarsphenamine, because of its hepatotropic effect, can activate the bacteria by lowering the functional status of the liver. 2. Dietetic errors, in the form of insufficient carbohydrate content. To reduce the incidence of these complications, the authors recommend that the following measures be carried out before and during the course of the mixed treatment: 1. Careful anamnesis and observation of the patient should be done, with particular attention to the general state, rises in temperature, attacks of malaise, headaches and rheumatic pains. 2. Proper evaluation should be given to even the mildest gastro-intestinal disturbances in the present and the past. 3. The importance of the diet should be emphasized, with elimination of alcohol and seasoned foods, and a sufficient amount of carbohydrates. 4. In addition to the investigation of the cardiovascular and the nervous system, and urinalysis, it is obligatory to examine the liver in all syphilitic patients by palpation and percussion, paying attention to pain below the ribs, a sense of weight in the epigastrium, icteric and subicteric manifestations, itching, bradycardia and enlargement of the liver and the spleen. 5. Infectious processes both in the present and in the past must be carefully estimated. 6. Strict adherence should be observed to established dosage and intervals in the administration of neoarsphenamine. 7. The functional state of the liver should be estimated, based on several tests, some of which, such as the icterus index and the urobilinogen reaction, may be carried out in ambulatory practice. The authors emphasize that positive tests indicating liver insufficiency do not exclude the specific mixed treatment but make it imperative to observe strictly the precautions mentioned and to repeat the study of the functional state of the liver.

Functional Capacity of the Stomach in Pulmonary Tuberculosis.—From a study of the gastric secretion in 124 patients with pulmonary tuberculosis, Moshkovskiy makes the following deductions: 1. Most of the patients with pulmonary tuberculosis display disturbances of the secretory function of the stomach. 2. Inactive and mild types of the disease generally show hyperacidity, while active and toxic types are inclined toward subacidity. 3. Strict parallelism between the toxicity of the process and the disturbance of the gastric secretion was not observed. The alterations in gastric secretion did not seem related to the subjective complaints of the patient. 4. In most cases, secretion reached its maximum during the second hour after the test meal. Nevertheless there is no reason to consider the delayed secretion as characteristic of a tuberculous intoxication. 5. Definite types of gastric secretion characteristic for tuberculosis could not be established either with the method of double stimulation of Zimnitskiy or with the fractional method of Katsch. 6. In 88 per cent of the total cases the empty stomach was found to contain gastric juice. Tuberculous toxemia has a depressing effect on the functional activity of the empty stomach. The more severe the tuberculous process, the rarer the finding of free hydrochloric acid and the lower the general acidity. 7. Evacuation of contents was found to proceed normally after the test meal. 8. Lack of regularity is the most characteristic feature of the gastric secretion in tuberculosis. Repeated observations demonstrated that subacidity frequently alternated with normal amounts and even hyperacidity. 9. The frequent heterochylia proves that the depression of the secretory function is caused not by an organic insufficiency of the secretory mechanism but by a certain lack of stability of the vegetative system. 10. The alkali reserve of the blood was not found to depend on the acidity of the gastric juice.

Hospitalstidende, Copenhagen

77: 85-128 (Jan. 23) 1934

*1. Roentgenologic Investigations on Development and Course of Juvenile Kyphosis: 2. Some Investigations on Vertebral Epiphyses in Animals and Man. H. Scheuermann.—p. 85.

Roentgenologic Investigations of Juvenile Kyphosis.—Scheuermann's discussion of the pathogenesis and development of juvenile kyphosis is based on eighteen cases, in thirteen boys and five girls. Detailed report of the cases is given. Usually, he says, two or three vertebrae are affected, the most marked changes appearing in the body from the ninth to the eleventh dorsal vertebra. As a rule the changes coincide with the development of the vertebral limbus, and a wedge shape of the vertebra results, assumed to be caused by pressure into the spongy substance of the cartilaginous layer of the body, probably together with reduction in growth. The irregular vertebral contour is regarded as due to the irregularly developed border of the vertebra in connection with possible nucleus prolapse. Fixation of the kyphosis may occur in the course of half a year, and the wedge shape corresponds to the degree of kyphosis. Prognosis cannot be made at the start of the disturbance.

77: 129-156 (Jan. 30) 1934

*Zoster and Chickenpox: Use of Fixation of the Complement in Determination of Question Concerning Identity of Zoster and Chickenpox Virus. O. Thomsen.—p. 129.
*Investigations on Cholesterol in Serum During Pregnancy. G. Teilum.—p. 140.
Pellagra: New Case. H. Boas.—p. 153.

Fixation of the Complement in Identity of Zoster and Chickenpox Virus.—Thomsen reviews the relation between zoster and chickenpox. The results were negative in his personal investigations on the fixation of the complement (analogous to those of Netter and Urbain) with application of serums from eighty-eight cases of zoster and extract of zoster and chickenpox crusts as antigen and of serums from fourteen cases of chickenpox and zoster antigen.

Cholesterol in Serum During Pregnancy.—Teilum says that pregnancy is accompanied by a hypercholesterolemia, often found in the third month and seldom absent later. He assumes that when the ovum has reached a certain stage of development (about the third or fourth month) a retention of cholesterol occurs in the mother, probably from the mother's organism (corpus luteum, reticulo-endothelial apparatus, suprarenals), and only to a slight degree from the food. Cholesterolemia has been considered necessary for the development of tissue in the fetus, but at least part of the fetal cholesterol may come from the placenta or endogenously from the suprarenals. Whether the mother's cholesterolemia is to be considered in connection with the cholesterol needs of the fetus is therefore doubtful. The cholesterol during pregnancy is believed to protect the mother's organism in different ways. Low cholesterol values in hyperemesis have been shown by other investigations.

77: 157-184 (Feb. 6) 1934

For and Against Loewenstein's Establishment of Tubercle Bacilli in Blood in Certain Tuberculosis and in Infections of More Doubtful Origin: Review. O. Thomsen.—p. 160.
Angleworm: Detail Study of Popular Medicine. A. Garboe.—p. 172.
*Treatment of Lymphogranulomatosis with "Specific" Serum. G. Alsted.—p. 177.

Lymphogranulomatosis.—In the case of lymphogranulomatosis treated recently in the Rigshospital with serum prepared in the State Serum Institute, according to Utz and Keatinge, the "specific" therapy was without effect. Alsted sees a danger in the treatment if because of it roentgen therapy is withheld.

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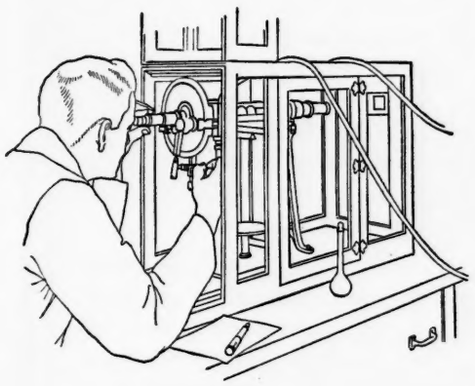

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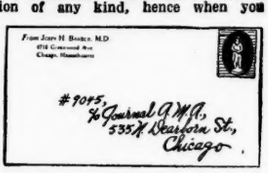

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(Continued on page 29)

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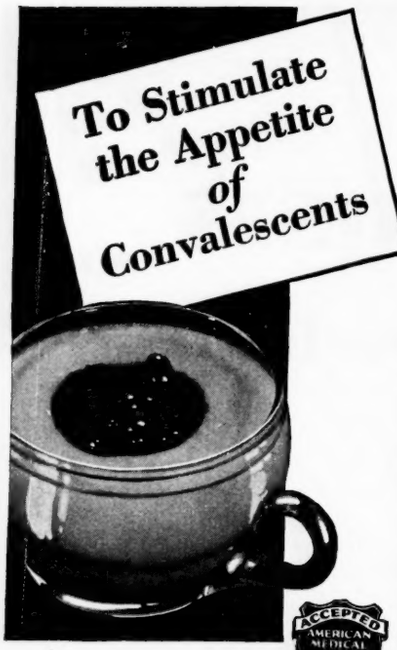


CUSTARD-LIKE junket desserts appeal to the eye and the appetite of convalescents. Prepared without cooking, junket supplies the full nutriment of milk. You will find it an excellent way to increase the daily milk consumption of children and adults, sick or well.

The active ingredient in Junket, the enzyme rennin, changes the casein of milk into paracasein, forming a soft, easily digested curd.

NRA MEMBER U.S. WE DO OUR PART

Send for Authoritative Booklet and Samples of Junket —FREE

"Junket in Dietetics" is an authoritative booklet of practical information, including simple, easy formulas for Whey and Protein Milk. Write Chr. Hansen's Laboratory, Inc., Department 134, Little Falls, N. Y.

for Hospitals

Junket Powder in 6 tempting flavors, sweetened, in pound cans.

Junket Tablets, not sweetened or flavored, in packages of 100.

Junket

REG. U.S. PAT. OFF.

and Milk

Partners in Health

Tonics and Sedatives

A Hot Head!

Newer pathology revealed to A. G. A. in the Portland Oregonian

With his skull fractured and a piece from the top missing, D. E. Peake, 55, woodyard employee, was found burned to death when fire destroyed the small building used as a woodyard office at *2922* Southeast Eighty-second avenue at *2*:40 A. M. yesterday. Peake was asleep in the loft of the structure at the time and was trapped by the flames.

Following an examination, R. M. Erwin, county coroner, said he doubted foul play. The coroner inclines to the belief that the intense heat generated steam in Peake's skull and blew out a section of it.

—◈—

AIDING COEDUCATION

Alarming item taken by J. L. R. from the Los Angeles Post Record

Four U. C. L. A. men students quarantined by an outbreak of scarlet fever, today hoped they would not be released until next June at the earliest.

They found the company of 19 co-eds perfectly to their satisfaction in the Kappa Alpha Theta sorority house, where all are confined.

The enforced residence in the sorority house will continue until Monday, at least, when Dr. Charles Grauss, health officer, examines them for traces of the disease.

Miss Helen Fischer, 19-year old sophomore from Beverly Hills, was blamed, or praised, for the situation. She became ill recently and a physician diagnosed the illness as scarlet fever. City health authorities promptly imposed the quarantine.

Within the sorority house, plans for a social season now have been completed. Tonight a fancy dress ball is being held with most of the men booked for five dates. Tomorrow afternoon a mock wedding is scheduled. A formal dance will follow.

The four men, all fraternity brothers, had their tuxedoes delivered by envious fraternity brothers so they could attend the dance in correct attire.

The men were employed by the sorority as bus boys and waiters, and because of their contact with the women they were included in the quarantine.

The men enjoying the long visit are John Wells, Paul Evans, Don McLean and Malcolm Jarred.

—◈—

A Rich Vein

Item seen by W. A. G. in the Current Medical Digest

A vein about the size of the cannula (preferably gold plated) is selected in that portion of the body where movements can be restricted and a vein of the proper size located.

—◈—

Where Women Are Men!

Headlines found by R. L. S. in the Buffalo News

OKLAHOMA IS READY TO STERILIZE UNFIT

Vasectomy for 14 Women and 1 Man in State Asylum Urged Upon Board.

—◈—

Page Chic Sale

Ad found by J. A. E. in the Pipestone (Minn.) Star

WANTED—Second hand out door toilet. Enquire at Star office. m23p

(Continued on page 28)

HISTACOUNT

***the* doctor's memory**

IF you keep history and account records you will want to change to Histacount. If you don't, you will want to use Histacount forms.

SIMPLE—CONCISE COMPREHENSIVE INEXPENSIVE

made for

GENERAL PRACTICE
OBSTETRICS
PEDIATRICS
GYNECOLOGY
UROLOGY
SURGERY
EYE, EAR, NOSE AND THROAT
AND ON ORDER

SAMPLES AND LITERATURE ON REQUEST

PROFESSIONAL PRINTING CO.

America's Largest Printers to the Profession

101-105 Lafayette Street, New York, N. Y.

Infra Red LAMPS ***GLOLITE*** **Penetrating Rays**

Infra-Red energy penetrates evenly, relieving pain, producing hyperemia, and relaxing muscular spasm. The efficacy of these rays is widely accepted as a means of alleviating pain and bringing relief in many varied cases. Obtain this treatment with the GLO-LITE Lamp.

Regular $27.50 Lamp at Almost Half Price

While 275 Last **$14.75** F.O.B. Chicago

GUARANTEED QUALITY

The Glolite is made to the highest specifications. It has self-locking vertical and horizontal extensions. New patented, quick heating Infra-Red generator. Ten-inch frosted reflector—no hot spots. With protecting screen.

Satisfaction Guaranteed or Money Refunded

Illinois Surgical Supply Company

10 S. Wells St. Chicago

NATURAL MOTION ARTIFICIAL LEG

FOR CONTINUOUS SERVICE

As comfortable a prosthesis as money and skill can produce. Beautifully constructed with articulation at the toe, ankle and knee.

Write for illustrated catalogue, measurement chart, and discounts.

DETROIT

ARTIFICIAL LIMB WORKS

310 Woodward Avenue
Detroit, Michigan, U.S.A.

Here is a cod-liver oil which can be given in usual dosage and still be effective enough for the very young baby—

A richer cod-liver oil, specially fortified with Vitamin D to give it extra anti-rachitic protection . . . .

For rapidly growing babies, who may need extra protection, be sure to specify this *richer* oil! *Squibb's Cod-Liver Oil with Viosterol-10 D!*

Ten times as abundant in Vitamin D as the standard cod-liver oil defined by the Wisconsin Alumni Research Foundation, it affords a safe margin of the important, anti-rachitic factor for the baby who is growing rapidly.

There's little likelihood of rickets developing when this preparation is used routinely.

And this *richer* cod-liver oil of Squibb's offers another distinct advantage! The baby's diet is amply fortified with the essential *growth* factor, Vitamin A.

Vitamin A is especially important for young babies at the age of their most rapid development. Many authorities concede that this important growth factor may also aid in building up the baby's general resistance.

Each gram of Squibb's Cod-Liver Oil with Viosterol-10 D provides not less than 1250 U.S.P. units of Vitamin A and not less than 1333 A.D.M.A. (133 Steenbock) units of Vitamin D. Prescribe it *routinely* for the young baby who needs its protection every day.

And this enriched cod-liver oil is prepared for older children also—Squibb's Mint-Flavored with Viosterol-10 D

Recommend that the older children take Squibb's Mint-Flavored Cod-Liver Oil with Viosterol-10 D regularly. It will aid them in building much needed resistance. And it's pleasant to take. Specify Squibb's. It is the *only* Mint-Flavored Oil with Viosterol-10 D now available.

SQUIBB COD-LIVER OIL
with **VIOSTEROL**
PLAIN OR MINT-FLAVORED
★
10 D

Manufactured under license from the Wisconsin Alumni Research Foundation by E. R. Squibb & Sons, manufacturing chemists to the medical profession since 1858

In Place of the Old Fashioned "Tonic"

TRY the High Vitamin diet, with BEMAX to furnish the abundance of vitamins B, G and E, the iron, copper, and phosphorus, and the growth-promoting, and tissue-building factors of the cereal embryo. No other food combines these factors in such high concentration.

Why BEMAX?

Bemax is entire cereal germ, standardized as to vitamin B potency, and thoroughly stabilized against deterioration. It is a tasty, concentrated food, easy to take and very economical to use for long periods. A tablespoonful a day, the usual dosage, furnishes an abundance of vitamin B, and adds zest to the appetite without any burden on the digestive process.

Supplied by druggists everywhere.

Schieffelin & Co.
20 Cooper Square New York City
Sole Distributors for
AMERICAN VITAMINS INCORPORATED

(Tonics and Sedatives Continued)

THE POETICAL DENTIST

Ad of a colleague in the St. Louis Globe Democrat, whence F. C. E. hoisted it

He will
fit your fangs
with filling

Or, if any nerves need killing, he will slay them if you're willing, or just tease them if you ain't.

He, of course, will not decline work for a fee; but he'll do fine work in exchange for expert sign work by a patient who can paint.

That, in substance, was the proposal in this Globe-Democrat Want Ad offering to "exchange first-class dentistry for sign painting."

BRIDGE UNDER CONSTRUCTION

KEEP SMILING

EVERY DENTURE AN ADVENTURE

Come, Whistler, where's your courage?

THE OLD ONES ARE THE BEST

Going out of business, a druggist hung this sign on his door:

"I am closing for good, but the public will find services I have rendered as follows:

1. Ice water at the fountain across the street.
2. General information from cop on beat.
3. Charity at county farm.
4. Change at bank across the street.
5. Petty loans also at bank.
6. Rest rooms at home.
7. Daily papers from newsboy.
8. Street car information at depot.
9. Matches from passers-by.
10. Loafing in the street."

The Light That Lies in a Woman's Eyes

Strange Tale taken by R. L. Du B. from the Montreal Gazette and by C. R. G. from the Shamokin (Pa.) News Dispatch

Trieste, Italy, April 6.—A mysterious light emerging from the breast of Signora Monaro, a patient in the Pirano Hospital, is rousing wonderment in medical and official circles.

Nurses noticed, while Signora Monaro slept, that a light like an electric flash seemed to emerge from Signora Monaro's breast, glow for about three seconds, and then disappear. The phenomenon recurred several times in the night. Physicians were called and said they too saw it.

Last night the sleeping woman was observed by four doctors. Provincial Pretor Genovesi and Political Secretary Fonda witnessed the light also.

The populace is most interested but is sharply divided in its views, one group affirming that a miracle is taking place and the other that Signora Monaro swallowed a flashlight.

(Continued on page 30)

Fills the Need for a dependable Antacid Mineral Water

Vichy CÉLESTINS

This long renowned naturally alkaline mineral water assists in neutralizing excess acid and in regularizing functions of the digestive tract.

Bottled at the Spring in Vichy, France, under Government supervision, it meets the need of the physician for constancy of composition.

Sole U. S. Agents
American Agency of French Vichy, Inc.
Fifth Ave. at 42nd St. New York, N.Y.

VIM
SQUARE HUB
NEEDLES

The **VIM NEEDLE** *has a* **RAZOR SHARP POINT**

In VIM Needles you get a degree of sharpness unattainable in ordinary needles for the points are hollow-ground like a razor.

Thus you get a keen cutting edge and a razor-sharp point—one that pierces tissue without undue pain. VIM Needle points stay sharp longer, too.

Specify VIM when ordering and get needles with Razor Sharp Points.

MacGREGOR INSTRUMENT CO.
Needham, Mass.

(Continued from page 25)

WANTED — PHYSICIAN — WITH EXTENSIVE training as hospital administrative and executive; public health and industrial medicine; desires appointment in kindred lines; good reference; available on short notice; aged 47; married; Protestant; World War veteran; colonel MRC. Add. 8896 I, % AMA.

WANTED—RESIDENCY—ANESTHETIST — ASSISTantship; 2 years' hospital training; 2 years' general practice; successful; university staff member; A.B., M.D.; desires more training in order to specialize later; best references; 33; Gentile. Add. 8843 I, % AMA.

WANTED—WOMAN PHYSICIAN DESIRES ASSISTantship; have had several years experience in general practice, 18 months in general hospital and 4 years in psychiatry; must have nice salary; give full particulars in first letter. Add. 8897 I, % AMA.

WANTED—SURGICAL OR MEDICAL OPPORtunity; full or part time institutional or industrial work or private practice; S.B., M.D., 5 years' hospital training and teaching, 4 years' research; will go anywhere for suitable opportunity. Add. 8899 I, % AMA.

WANTED—YOUNG WOMAN PHYSICIAN DESIRES association with ethical practitioner or clinic; M.D., M.S., leading universities; twenty-four month internship, large general hospital; advanced training in biochemistry and pathology; clinical and scientific publications; honor societies; National Board licentiate. Add. 8900 I, % AMA.

WANTED—PHYSICIAN DESIRES ASSISTANTSHIP, associateship or locum to older practitioner; single, 30; graduate A-school, 1931; 2 years' hospital training, including residency; N. Y. license; 6 months' private practice; assistant Mount Sinai Dispensary; excellent references. Add. 8904 I, % AMA.

WANTED—RADIOLOGIST WITH 3 YEARS' EXperience in x-ray diagnosis, deep therapy, radium therapy and physical therapy at large, well known hospital; also 3½ years' general practice. Add. 8840 I, % AMA.

THE MEDICAL BUREAU HAS AVAILABLE A splendid group of well qualified hospital administrators, graduate nurses, laboratory technicians and dietitians; all credentials thoroughly investigated; services gratis to employers. Medical Bureau, 3800 Pittsfield Bldg., Chicago. I

NURSES WANTED

WANTED — ASSISTANT SUPERINTENDENT OF nurses—instructor by well known midwestern hospital; university and city environment; excellent opportunity for professional progress; adequate salary; must have background and personiality. Allied Professional Bureaus, Marshall Field Annex, Chicago.

REPRESENTATIVES WANTED

IF YOU ARE EXPERIENCED IN CALLING ON physicians, have a car and are willing to cover small towns as well as the larger ones, we can offer you a dignified proposition that pays a liberal commission and bonus; give full details about yourself and references in first letter. Add. 8797 JJ, % AMA.

LABORATORY TECHNICIANS WANTED

THE MEDICAL BUREAU MAINTAINS DEPARTments for hospital administrators, graduate nurses, technicians and dietitians. Application on request. 3800 Pittsfield Bldg., Chicago. L

(A) BACTERIOLOGIST, WOMAN, COLLEGE DEgree; 3 years' experience preferred with New York State or public health laboratory; $120; midwest. (b) Charge of media department, woman, college degree, New York City; salary open. N. Y. Medical Exchange, 489 Fifth Ave., N. Y. C. L

(A) X-RAY AND LABORATORY TECHNICIAN; experienced woman; $90, maintenance; 150-bed hospital; Ohio. (b) Clinical laboratory technician; $100, no maintenance; southern hospital.* (c) X-ray and laboratory technician; surgeon's office; eastern city; $75, with living quarters. 240, Medical Bureau, Pittsfield Bldg., Chicago. L

HOSPITALS AND SANITARIA FOR SALE

FOR SALE OR LEASE—ELIZABETH'S HOSPITAL is a fully equipped, 16-bed institution, with an established surgical practice in a good county seat town, located in a splendid farming section; I am retiring from practice. If interested, address R. C. McChord, M.D., Lebanon, Kentucky. O

FOR SALE—40-BED SANATORIUM—LONG EStablished, going and paying; city 70,000, New York state; fully equipped, low overhead, low taxes; separate homes for manager and employees; small initial payment, balance from earnings; an unusual opportunity. Add. 8839 O, % AMA.

PRACTICES FOR SALE

FOR SALE—CALIFORNIA—ESTABLISHED FAMily practice in suburban Los Angeles; fully transferable; pleasant, well located and well equipped office and unusually comfortable Spanish home; may be easily purchased; thorough introduction; reason retiring. Add. 8889 P, % AMA.

FOR SALE—CENTRAL CALIFORNIA — OFFICE equipment including diathermy, Cameron diagnostic lights, deep-therapy lamp, instruments, furniture; good location, population 5,000; hospital; low rent; near mountain resorts. List of items on application to M. J. Groesbeck, Porterville, Calif. P

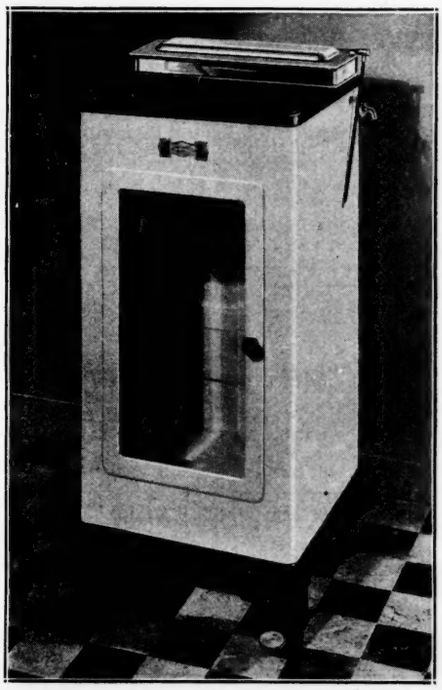
FOR SALE—DELAWARE—NEAR DOVER—$4,000-$5,000 established practice of physician deceased; 9-room house, including offices and bath; good surrounding country; 2 hospitals within 12 miles; fine opportunity. Add. 8829 P, % AMA.

(Continued on page 34)

CASTLE'S NEW "500"

Sets the New Note of Modernism in Office Equipment . . . . and *It's Priced for the Times*

Here, Doctor, is your opportunity to put the "right foot forward" in this much discussed question of office modernization . . for in this gleaming new CASTLE"500" you have a unit of equipment that not only *looks* up-to-date — but also brings to your office a thoroughly up-to-date sterilization technique.



It's a *real* modern sterilizer, from it's chrome cover to its handy foot-pedal — and priced for the times, only $89.00. Yet the "500" has recessed sterilizer unit . . . CAST IN BRONZE boiler . . . "Full-Automatic" (no watching) control . . . attractive, roomy and illuminated cabinet . . . plus many other up-to-date features that make it a real investment in modern protection.

Ask your dealer for full details, or write Wilmot Castle Co., 1155 University Ave., Rochester, N.Y.

CASTLE STERILIZERS

The Next Step in Medical Progress

The Periodic Health Examination

Be prepared to make these tests in your own office. Instruction book tells how and gives brief advice and counsel for patient. Record forms make it convenient to assemble and maintain data.

RECORD FORMS: 10 copies....25c
50 copies....50c 100 copies....75c
INSTRUCTION MANUAL.....20c

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535 N. Dearborn St. Chicago, Ill.

DEPENDABLE PRODUCTS

DISPENSE YOUR OWN MEDICINES —There are many advantages in personally supervising the administration of drugs you use. We manufacture and ship direct to physicians in any part of the U. S. everything pharmaceutical, i. e., tablets, lozenges, ointments, etc. Every product is ready for immediate use, easily dispensed. We guarantee them true to label and of reliable potency. Our complete catalog should be in the hands of every physician who dispenses. Mailed free on request.

THE ZEMMER COMPANY
Chemists to the Medical Profession
Oakland Station Pittsburgh, Pa.

Used the World Over

Apollinaris

Healthful Refreshing

This sparkling table water is bottled only with its own natural gas

Exclusive U. S. Representative
Park & Tilford, 485 Fifth Avenue, New York

500 Letter Heads 5½ x 8½

$3.50 POST PAID

500 White Wove Envelopes

500 Statements with above order $5.25

1,000 Envelopes
1,000 Letter Heads
1,000 Statements
Price, $2.85 Per 1,000, Post Paid

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Write for Quotations on Other Printing.
Add 10% West of Mississippi.

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THE
Wallace Sanitarium
Memphis, Tenn.

W. R. Wallace, M.D. H. W. Priddy, M.D.

For the treatment of DRUG ADDICTION, ALCOHOLISM, MENTAL AND NERVOUS DISEASES. Located in the eastern suburbs of the city. Sixteen acres of beautiful grounds. All equipment for care of patients admitted.

DR. BRAWNER'S SANITARIUM
SMYRNA, GA. (Suburb of Atlanta)
(Established in 1910)

A Private Hospital for Mild Mental Disorders and Addictions. Facilities for the Custodial Care of the Aged and Infirm. Ideal climate, both winter and summer. Large grounds (80 acres).

James N. Brawner, M.D., Medical Director
Albert F. Brawner, M.D., Resident Physician

Here's an Accepted Food any patient can afford

MALT-O-MEAL

one package makes over 12 lbs. of cooked food

Hundreds of doctors have sent for samples of this new energy food that children and adults delight in. A Wheat cereal with the delightful flavor of Toasted Malt. Cooks in 2 to 3 minutes. Six samples free for distribution to patients sent to physicians or hospitals. Request on letterhead.

Campbell Cereal Co., Northfield, Minn.

MALT-O-MEAL

(Tonics and Sedatives Continued)

North Carolina Goes Modernistic

Ad seen by E. J. W. in the Monroe (N. C.) Enquirer

FOR RENT—Upstairs apartment to unmarried couple. J. T. Belk, 701 South Hayne street. 1tp

DR. PEPYS' DIARY

April 5.—To ye opening of a new review and there many fine dancers and also singing but all entranced by ye playing of a harmonica, which a lad named Larry Adler causeth to bring forth symphonic music putting many an orchestra to shame with ye Bolero of Ravel and many other pieces.

April 7.—This day breaking open ye golf season on a blustery day to ye tune of 106 which was fair for ye season but old Pepys should do better. And West, Hektoen and Lewin did worse.

April 10.—All day now hard at ye toil preparing material for ye annual session of ye doctors which cometh together in Cleveland and thereafter to eat moose steak with Cameron, Clough, Braun, Phibbs, Caldwell and ye others. Then viewing ye trophies of ye hunt from Africa to ye Bering Sea. At last then playing at mathematics and did very well until I bethought myself of a new game called progressive whereupon all ye counters progressively disappeared—and more too.

April 13.—By night to see "Men in White" in ye motion pictures, but ye movie scribes must need shift ye dialogue about—and though it was good ye play as acted had more of drama and human feeling.

April 14.—Again at golf and now a 99 indicateth ye weather is better and ye game improveth.

April 16.—In Little Rock, Arkansas to attend ye meeting of ye state medicos. En route reading again "Sartoris" of Faulkner for ye flavor of ye South and also Alexander Powell's work on Hitler and this Powell as suave and soft spoken a propagandist as ever putteth pen to paper. Then speaking to ye medicos of whom come more than 500 on ye work of a physician. Thereafter to a dinner of ye officers where Kozminski, ye president, told tales and gave recitations in Italian dialect which put many a professional to blush. And old Pepys told some tales also. Then to a great meeting where came more than 2,000 and also was a broadcast on ye radio of what Pepys had to say on quackery. At last to a fine party in ye home of Hundling with fine refreshments. So finally Pepys confused ye Mesdames Murray and Carruthers but he could not confuse Mesdame Brooksher—on ye contrary. And late at night to ye train with Jackson who is ye committee on arrangements and ye commissioner of police and a dermatologist and what not besides, all handled to ye king's taste.

April 18.—Now in Birmingham, Ala., after a night on ye train and most of a day thereto. But a fine day withal for one could sit quietly writing and editing, a privilege which cometh but seldom in ye home city.

(Continued on page 31)

Lakeside AMPOULES
...for Office, Hospital, Clinic

Where Sodium Cacodylate is indicated . . .

Lakeside

Sodium Cacodylate ampoules. Low in toxicity . . . well tolerated by the patient.

ACCEPTED AMERICAN MEDICAL ASSN.

Write for prices and further information.

The Lakeside Laboratories, Inc.
MILWAUKEE, WISCONSIN

Manufacturers to the Medical Profession Exclusively

MEDICAL MART

Laboratory Supplies

AMERICAN-Made GIEMSA STAIN for blood smears. We manufacture a high grade GIEMSA STAIN. $2.00 for 50 grams.
Stains and Reagents carefully made and tested in actual cases.

Write for Catalogue.

GRADWOHL LABORATORIES
3514 Lucas Avenue
St. Louis, Missouri.

Insurance

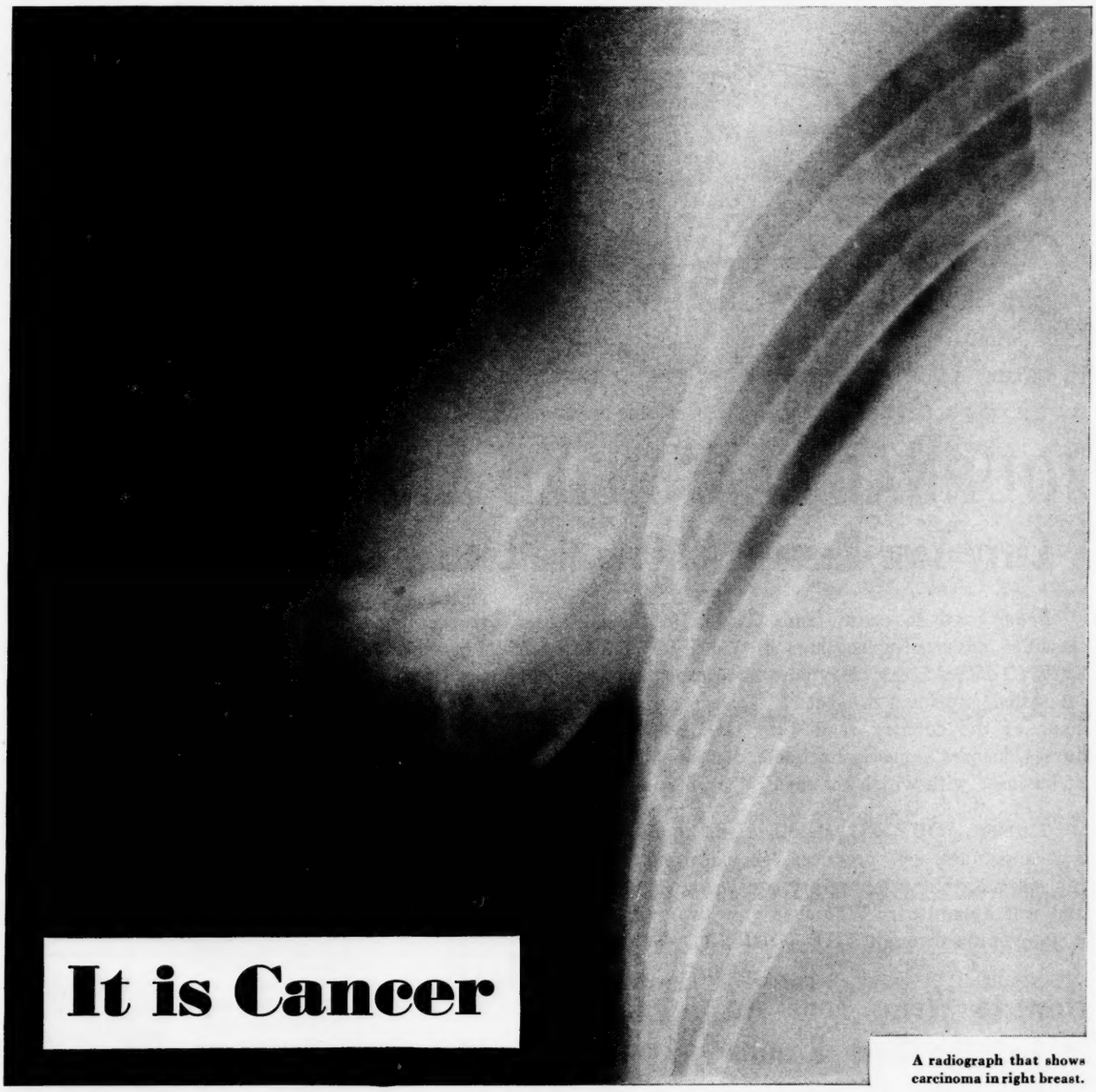
No doubt you are a careful driver but personal injuries will occur. Our Accident Policy pays $25 Weekly Benefit and $5,000 Death Benefit. Costs only $13.00 yearly. We paid out $300,750.78 for fatal and non-fatal accidents during 1932. Write for particulars. Three policies issued to one person providing $75 Weekly and $15,000 Death Benefit.

PHYSICIANS CASUALTY ASSOCIATION
400 First National Bank Bldg., Omaha, Nebr.

Pharmaceuticals

For 20 Years HAY-FEVER
has been prevented in thousands of cases with
Pollen Antigen Lederle
Lederle Laboratories Inc. 511 FIFTH AVE. NEW YORK

People who have what you want
AND
People who want what you have
USE
Journal CLASSIFIED ADS



It is Cancer

A radiograph that shows carcinoma in right breast.

BREAST tumors—malignant or benign—often are not detected in their first stages due to the patient's inattention, indifference, or fear; or, occasionally, to inadequate evaluation of symptoms. Yet early detection is imperative.

X-ray examination is a most valuable and accurate aid in recognizing and differentiating breast tumors. X-rays will reveal evidence of them without exploratory section . . . Biopsy can be limited to those clinically suspicious cases that radiographically prove characteristic.

The radiograph reveals early normal or pathological changes . . . obviates repeated palpation, especially in the obese . . . makes conclusive differential diagnosis in patients at the cancer age. Serial radiographic study permits follow-up of doubtful cases . . . facilitates pre-operative recognition of carcinoma.

Refer suspicious cases to a competent radiologist, early.

RADIOGRAPHS PROVIDE DIAGNOSTIC FACTS

NRA

● *If you wish to receive "Radiography and Clinical Photography," without charge, mail the coupon.*

EASTMAN KODAK COMPANY,
Medical Division
341 State Street, Rochester, N. Y.

Gentlemen: I should like to receive the free publication, "Radiography and Clinical Photography."

Name _____

No. & St. _____

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Carry Your Message All Over the Country

From coast to coast, from Canada to the Gulf, are prospects the classified advertising columns of THE JOURNAL A.M.A. can reach. THE JOURNAL can carry your advertising message to the very desks of interested physician prospects. At least two-thirds of the active physicians of the country read THE JOURNAL. In addition it reaches nurses, hospitals, medical schools, dentists and druggists, and those lines of business with which the medical profession is concerned.

Through JOURNAL classified ads hundreds of physicians each year find assistants, sell practices, get locations, buy and sell books, find interns, nurses and laboratory equipment, rent offices, sell hospitals, buy and sell apparatus. Whatever your want may be, you can broadcast it nationwide through THE JOURNAL.

How to Write Your Ad to Get the Best Results ● ● ●

● When writing your advertisement, picture yourself face to face with your prospect. What would arouse his interest and make him act on your proposition? Remember that while you know all about it, your prospective employer, purchaser, or applicant knows only what you tell him in your ad. Put yourself in his place. Answer the questions you think he would want to ask. He is interested in what *he* wants.

● If you want to get the best results from your ad, be sure to give specific details so that the reader can get a clear understanding. Give the important features of your proposition in a positive, straightforward manner. And use enough words to tell your story fully. Do not try to economize at the expense of the effectiveness of your advertisement by omitting important and attractive features. Extra words over 35 cost only 10 cents each.

Find the right prospect through THE JOURNAL A.M.A.

For further details see page 24 this issue

SEX EDUCATION

New Booklets by THURMAN B. RICE, M.D.

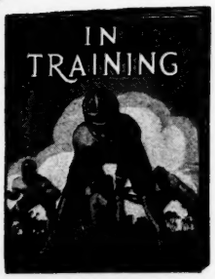
Modern without sacrificing fundamentals. Frank, but not sensational. Illustrated.

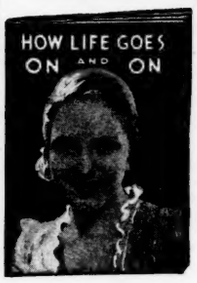
For Boys and Girls of Ten

How life comes from life—How flowers are born—Male and female functions in fish, frogs, turtles, birds, calves, colts, kittens and human beings—Simple facts about sex hygiene. **36 pages**

For Boys of High School Age

How Sex influences every minute of life—Clean sports—The fun of hobbies—The miracle of Life—Human mating—Purposes, physiology and hygiene of sex—How marriage protects the race. **48 pages**





For Girls of High School Age

Motherhood, the great career—How reproductive organs function—Menstruation, its physiology and hygiene—Athletics for girls—True feminine attractiveness—Going out with boys—Marriage. **38 pages**

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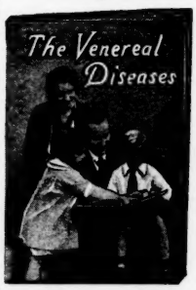
Training for happy home life—Sex feeling of male versus female—Control: a mutual responsibility—Premarital understandings—Planning for parenthood—Ideal honeymoon—Two purposes of sex. **44 pages**



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(Tonics and Sedatives Continued)

Garage Physiology

Found by H. M. M. in the Pasadena Post

Antone Albert Obrego, about 40 years old, picked up in a small, down town hotel yesterday for disturbing the peace, was taken ill in the city jail last night and when examined by an Emergency Hospital surgeon was found to be suffering from an unusual disorder termed heart block. He was sent to the General County Hospital for extended care to prevent his death.

The disorder is said to be a nervous affliction which causes the valves of the heart, which are valves in the true sense just as the heart is a pump, not to syncronize. That is, an intake valve does not work on a proper timing ratio with an outgoing valve, which has about the same effect on the heart and consequently, upon the necessary circulation of the blood, as a balky but still operating valve would have in a gasoline engine.

Books Received

Books received are acknowledged in this column, and such acknowledgment must be regarded as a sufficient return for the courtesy of the sender. Selections will be made for more extensive review in the interests of our readers and as space permits. Books listed in this department are not available for lending. Any information concerning them will be supplied on request.

CHRONIC NASAL SINUSITIS AND ITS RELATION TO GENERAL MEDICINE (CHRONIC SINUSITIS AND SYSTEMIC SEPSIS). By Patrick Watson-Williams, Hon. Consulting Surgeon in Diseases of the Ear, Nose, and Throat, Bristol Royal Infirmary. With a foreword by Sir Humphry Davy Rolleston, Bart., G.C.V.O., K.C.B., Physician Extraordinary to H. M. the King. Second edition. Cloth. Price, $5. Pp. 262, with 122 illustrations. Baltimore: William Wood & Company, 1933.

COCCIDIA AND COCCIDIOSIS OF DOMESTICATED, GAME AND LABORATORY ANIMALS AND OF MAN. By Elery R. Becker, D.Sc., Associate Professor of Protozoölogy, Iowa State College. Monograph Number 2, Division of Industrial Science, Iowa State College. Fabrikoid. Price, $2.50. Pp. 147, with 25 illustrations. Ames, Iowa: Collegiate Press, Inc., 1934.

PROCEEDINGS OF THE THIRTIETH ANNUAL CONVENTION OF THE NATIONAL ASSOCIATION OF BOARDS OF PHARMACY. ALSO PROCEEDINGS OF JOINT MEETING WITH THE AMERICAN ASSOCIATION OF COLLEGES OF PHARMACY HELD AT MADISON, WIS., AUGUST 28-29, 1933. Paper. Pp. 180. Chicago, [n. d.].

TRATAMIENTO DEL TIFO EXANTEMATICO POR EL SUERO DE LOS DD. M. RUIZ CASTAÑEDA Y H. ZINSSER. Por Enrique Viesca Benavides, practicante del Hospital C. Beistegui. Tesis recepcional. Universidad Nacional Autónoma de México, Facultad de Medicina. Paper. Pp. 196, with illustrations. Mexico, D.F., 1933.

SCIENTIFIC ORGANIZATIONS IN SEVENTEENTH CENTURY FRANCE (1620-1680). By Harcourt Brown, M.A., Ph.D. History of Science Society Publications, new series V. Cloth. Price, $3. Pp. 306. Baltimore: Williams & Wilkins Company, 1934.

EINHEITLICHE GRUNDLAGE FÜR DIE DIÄTTHERAPIE DES DIABETES MELLITUS. Von Dr. I. Normand. Paper. Price, 4.50 marks. Pp. 77, with 6 illustrations. Leipzig & Vienna: Franz Deuticke, 1934.

CENT CAS DE CANCER TRAITÉS ET APPAREMMENT GUÉRIS À L'INSTITUT DU RADIUM DE MONTRÉAL. Par le Dr. J. E. Gendreau. Paper. Pp. 119. Montreal: Librairie Déom, 1934.

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—QUILLIAN, WARREN: J. Florida Med. Assoc., Jan., 1934

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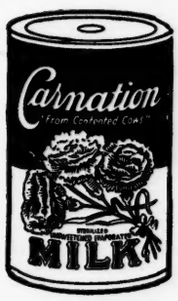

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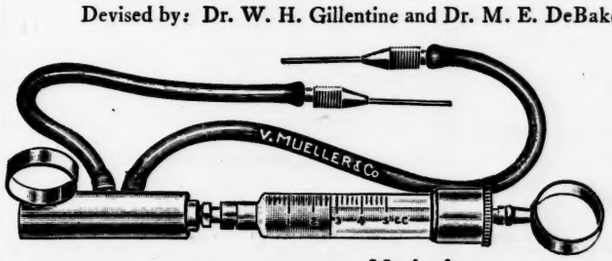

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(Continued from page 29)

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NEITHER MUCH SKILL NOR IMAGINATION ARE required to provide successful desserts for the convalescent with Junket, advertised on page 26. It is prepared without cooking and affords a pleasing way to increase the daily milk consumption. Available either as Junket Powder, in six flavors, sweetened, or as Junket Tablets, unsweetened and unflavored. Note that a book of practical information on "Junket in Dietetics," with samples, will be furnished upon request.

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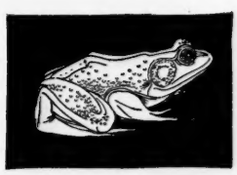

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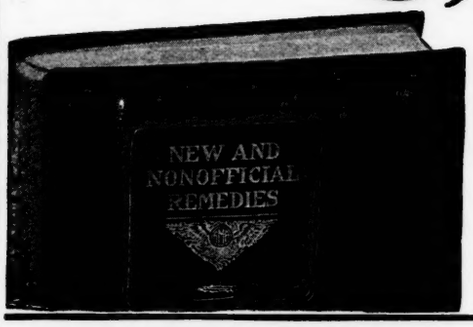
The TRUTH about the NEWER DRUGS



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INDEX TO PRODUCTS NOT ACCEPTED. Furnishing references to articles on such preparations which have appeared in The Journal, *Annual Reports of the Council, etc.*

LIST OF ARTICLES DESCRIBED BUT NOT ACCEPTED. Preparations examined by the Council and found not to require acceptance or rejection under its rules.

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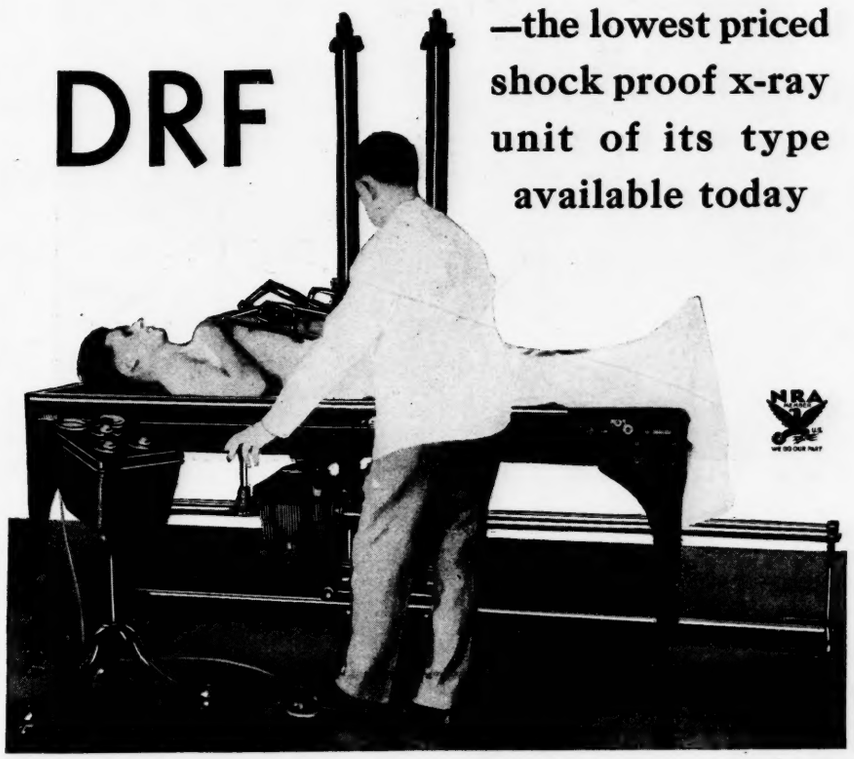

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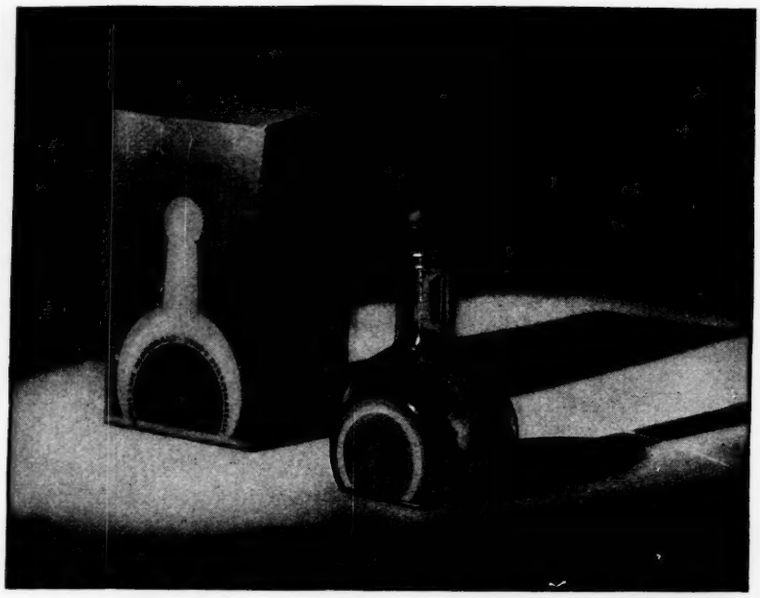

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AUTHORITY: "In introducing artificial food to an infant, it is safer to start with low dilutions of milk and sugar and raise the strength and amount gradually to meet its needs.

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"Certain definite food, caloric, fluid and vitamin requirements must be met to insure good digestion, normal weight gain, and growth."—(Donnelly, J. D., Penn. Med. Jour., Vol. XXXVI, No. 8, May, 1933.)

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MUMPS

Neurologic Complications

"Just a case of mumps," may be a safe attitude to assume toward some cases of epidemic parotitis, but by no means all—because serious involvements of the nervous system may accompany the disease. However, comparatively little has been reported concerning this sequel of mumps, and the article by Dr. Carle B. McKaig, Pine Island, Minn., and Dr. Henry W. Woltman, Rochester, Minn., appearing in the April issue of ARCHIVES OF NEUROLOGY AND PSYCHIATRY, is particularly significant. A case of parotitic myelitis from the Section on Neurology of the Mayo Clinic is described by the authors, and the literature is briefly reviewed. The paper includes consideration of age and time of onset of epidemic parotitis, psychiatric disorders, meningitis, encephalitis, neuritis, neuro-ophthalmologic and other complications, observations of the pathologic processes, experimental studies, and differential diagnosis.

EPILEPSY

"In studying epileptic patients the whole personality must be considered, with attention to all factors and their interrelations," according to Dr. Oskar Diethelm, Baltimore, writing on "Epileptic Convulsions and the Personality Setting." Dr. Diethelm reports a number of cases in which study was made of the personality, with analysis of the symptoms and their setting. The entire subject is discussed in a comprehensive manner, with an honest appraisal of results secured by psychotherapeutic approach in the cases described.

Also in the April number is report of results secured from treating twenty institutionalized patients suffering from cryptogenic epilepsy, with a ketogenic diet for a period of from 108 to 729 days. Ages of the patients ranged from 22 to 47 years, and each case showed some mental deterioration. The rather surprising results of the study should be of wide-spread interest.

Worth noting, too, in this issue, is a clinical report from the University of Minnesota Medical School, regarding idiopathic epilepsy in identical twin girls. According to the authors, the general summation of resemblances in the twins was so similar that their monozygotic origin seems certain.

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Other Features in April Issue

ARCHIVES OF NEUROLOGY AND PSYCHIATRY

Familial Organic Psychosis (Alzheimer's Type)

Cellular Inclusions in Cerebral Lesions of Epidemic Encephalitis

Peculiar Condition in Cells of External Geniculate Body Resembling Amaurotic Idiocy

Parasellar Tumors: Meningeal Fibroblastomas Arising from the Sphenoid Ridge

The Red Nucleus: Its Relation to Postural Tonus and Righting Reactions

Clinical Notes:

Psychoses Associated with Probable Injury to the Hypothalamus and Adjacent Structures: Effects of Solution of Pituitary and Pitressin Given Intraspinally

Status Marmoratus Related to Early Encephalitis

Acute Diffuse Polyradiculoneuritis Following Oral Sepsis

SPECIAL ARTICLE

Training of a Neurologist (by Wilder Penfield, M.D., Montreal)

Abstracts from Current Literature

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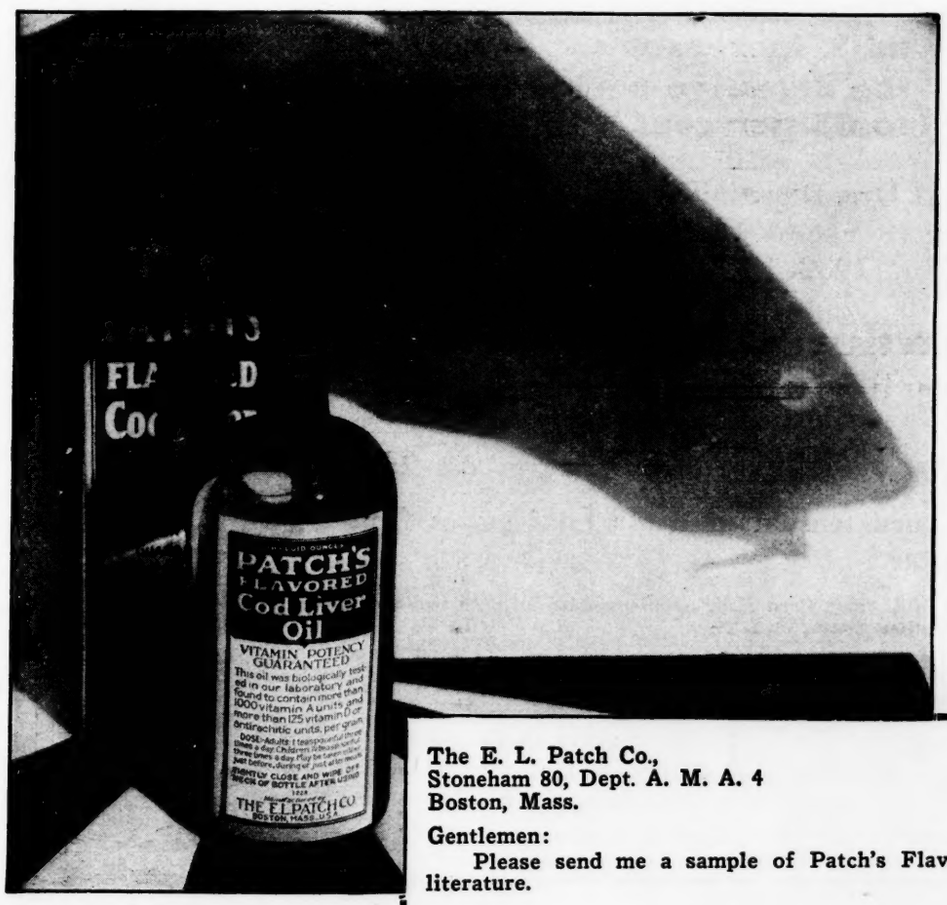

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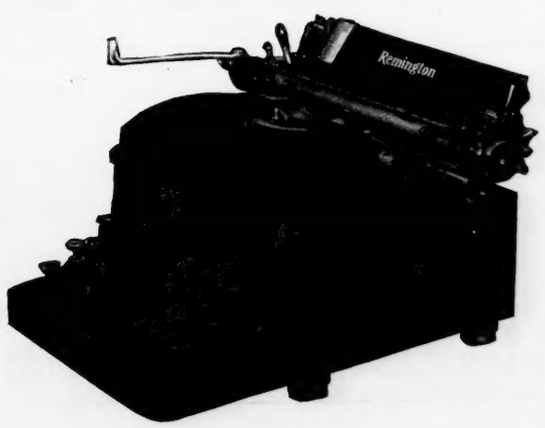

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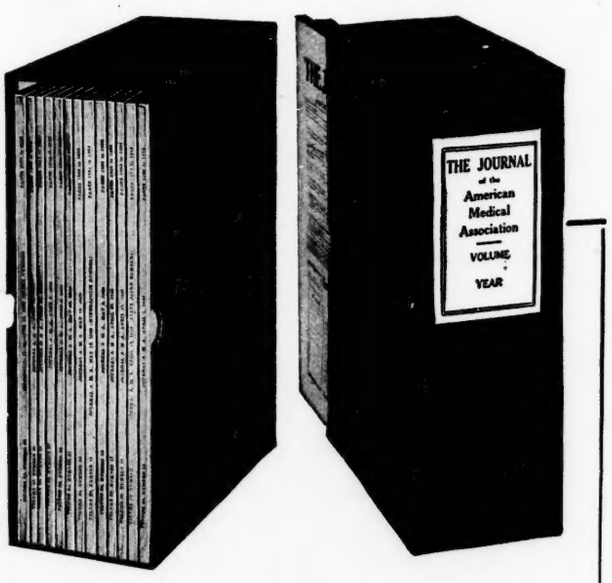

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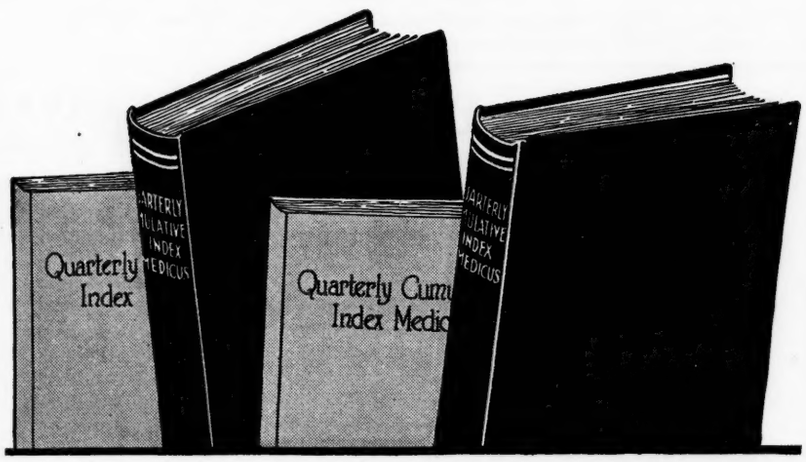

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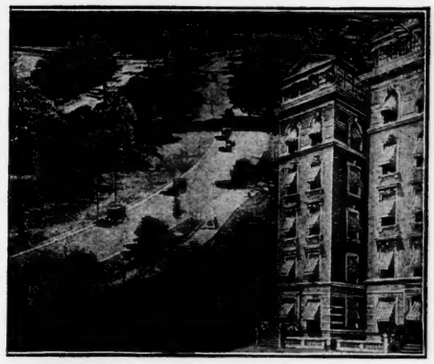

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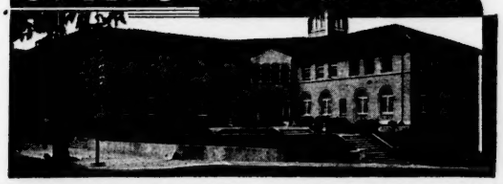

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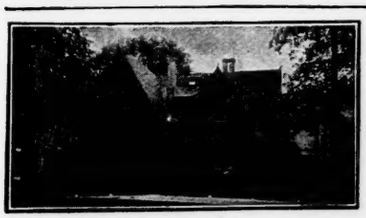

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FALSE WHISPERING CAMPAIGNS

The fact that viosterol has successfully endured five years of malign and vicious word-of-mouth attacks by representatives of commercial houses, speaks well for the therapeutic value of this useful vitamin D agent.

A curious feature of these rumors is their geographical chameleon-like adaptability. About two years ago, detail men in the east told physicians that Dr. Alfred Hess had "renounced" viosterol. This was denied by Dr. Hess.

About six months later, in the middle west, a different false rumor was spread that Dr. Harry Steenbock had "condemned" viosterol and that "it would be withdrawn from the market in 90 days." This was denied by Dr. Steenbock.

The latest false rumor is now going around the Pacific coast, to the effect that three old ladies died from viosterol administration and that at the autopsies, "the knife grated up against stony deposits in the lungs." How ridiculous this story is, may be seen from the following report* of "four hopelessly diseased young adult patients chosen for this experiment with the permission of their relatives. Three of the individuals had widespread miliary tuberculosis and the fourth metastatic carcinoma." Each patient daily was given the equivalent of *600 to 2,000 cc.* (!) of Mead's Viosterol in Oil 250 D (which is several thousand times normal dosage). Here are the facts which commercial interests antagonistic to the sale of viosterol for selfish commercial reasons, have garbled, always by word of mouth, never in writing:

> *"Post mortem examination showed no changes attributable to the elevation of calcium or phosphorus. The lesions of each case appeared the same as similar lesions seen in other patients who had died of tuberculosis or cancer. Histological examination of the sections from each patient revealed the characteristic changes found in tuberculosis or carcinoma but no evidence of calcium deposits."*

Physicians can draw their own conclusions and form their own opinions of individuals who spread unfounded whispering campaigns against a valuable therapeutic agent that has endured over five years of the most searching experimental investigation and clinical use not only in rickets but also for controlling calcium-phosphorus metabolism generally.

* Spies, T. D., and Hanzal, R. F.: Experimental production of hypercalcemia in human beings by means of irradiated ergosterol, *Proc. Soc. Experimental Biol. and Med.* **31**:747 (March, 1934)

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